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Research findings derived from classroom courses offered by educational institutions were reviewed. The courses constituted only a small part of the field recognized as educational television. Public relations programs or commercially sponsored programs were not considered.

Studies revealed that television students have done as well as other students. Although no long term retention studies have been done with television, it was found that after an 8-month period, television students scored highest, followed by in-studio students, radio, and finally "reading-only" students. The degree of forgetfulness among the four groups was not significantly different, but was proportional to the amount learned and was independent of the medium by which the information was acquired. In a comparison of the three different methods of presenting information by television (lecture, interview, and panel discussion) there seemed to be no significant difference among the three methods as measured by an immediate information post-test. Class size had no effect on the amount learned, but low aptitude students seemed to learn best by television. No date existed on the subject matter taught best by television, but administrators preferred science, social studies and art. Viewers of telecourses ranged in age from 30 to 40, were mostly female, with average years of schooling from 13 to 14 years. Dropout rates during telecourses sometimes ran as high as 40%, but steady viewers were better educated, had spouses with more education, and had fewer distractions. The instructor was mentioned most often as the most liked feature of the course presentation. Appended are abstracts of pertinent research, an annotated bibliography and results of the survey conducted by the Institute of Communications Research.

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of

INSTRUCTIONAL TELEVISION RESEARCH

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BY

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AN INVENTORY OF INSTRUCTIONAL TELEVISION RESEARCH

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Introduction*

Formal instruction by television has experienced a steady growth both in the number of institutions involved and the variety of courses offered. There is reason to believe that this growth will continue. A periodic assessment of this growth may prove to be a valuable guide, not only to those who expect to plunge into instructional television, but also to those who are already engaged in this activity. This report endeavors to answer partially the questions of who, what and how, with respect to teaching by television.

We have avoided the term educational television whenever possible. In its broadest sense this appellation has become associated with all "cultural" television programs. Thus, Omnibus, Ding Dong School, You Are There and other similar programs have been classed under the rubric of educational television. To others, the term has meant all those offerings which educational institutions have produced. Under this meaning, all public relations type programs, put on mainly by public school systems, are classed as educational television. Still another conception is to link the term with all programs emanating from non-commercial television stations. To a few, the term is synonymous with dull program fare, which ought to be watched, however, because it is somehow uplifting.

The scope of this study is limited to research on deliberate instruction courses by television. By deliberate instruction courses, we mean classroom courses offered by educational institutions. These courses may be either

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* The author wishes to thank the Institute of Communication Research for its support of this project. He also wishes to thank F.S. Siebert, acting director of the Institute, F.E. Schooley and H.J. Skornia of the National Association of Educational Broadcasters for their advice and encouragement.

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credit or non-credit. This is only a small part of the field recognized as educational television. We will not consider, therefore, a major television activity of educational institutions, the public relations program. Nor will we consider any of the commercially sponsored programs, no matter how meritorious, which are designed for general enlightenment.

This study is divided into two main parts. Section I is a review of research findings. Section II is a collection of abstracts of pertinent articles. It is intended as a guide to those interested in reading further about research in the field. Two appendices are included. Appendix A is a list of titles for further reading, annotated for convenience. Appendix B is a resume of a census questionnaire survey. *

It is hoped that this compilation of data, available only in fragmentary form elsewhere, will fill a need for persons interested in instruction by television.

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* The complete report is on file at the Institute of Communication Research. The results of the census survey are not included in this report because of the publication of a similar study at Michigan State University which seemed more complete than the one the author made. Readers interested in a course-by-course listing of credit courses are referred to McKune, L.E. Telecourses for credit. East Lansing: Continuing Education Service, Michigan State University, June 30, 1956.

Section I

An Overview of Instructional Television Research

Actual performance has far outstripped evaluation in instructional television programming. This lag, taken by itself, is not disheartening. Indeed, it bespeaks a faith and enthusiasm in instructional television even though concrete evidence on many points may as yet be lacking. It is the relationship of evaluation to practice which should merit serious attention.

We need pioneers in any new field. There is a danger, however, that the energies and talents of these pioneers may be dissipated on numerous byways which will not produce fruitful results. It is here that research may perform one of its functions. Research can help to specify some of the avenues of most probable effectiveness. Moreover, it can weigh the relative merits of several contemplated approaches to a problem in instructional television, and aid in eliminating the more inefficient and uneconomical ways. Research can do this, only if, the objectives and aims of instructional television are given by the practitioners.

All of this has been said before with respect to other fields. It takes on added importance here because of the tendency for research to be an afterthought to instructional television efforts. Except in very few studies, a true partnership between performance and evaluation does not exist. The abstracts and additional readings sections contain the results of research accomplished thus far. The list is pitifully small when seen in the light of at least 47 in-school viewing efforts by as many school systems, 406 credit and non-credit courses put on by 77 different colleges and universities, and at least 29 closed-circuit teaching programs.

Although the lack of studies may in part be attributed to the slighting of the need for research on the part of program producers and sponsors, some of this lack may be due to the quality of evaluation studies thus far. The two are related however, for indifference to research by producers results in hit-or-miss efforts by researchers. A great many evaluation procedures are instituted after the instructional course has been put on the air. The research person is asked to evaluate the program without having been consulted on how producers might have arranged conditions so that more or less clear cut answers might emerge.

This is not to imply that every instructional television program should be burdened with an experimental research project. As George Stoddard, former chairman of the board of the Educational Television and Radio Center, has remarked, "Presently we cannot expect to get research of the kind that will satisfy the research expert. I think we must have faith, and it is not at all an irrational faith. It is a faith based on the uniformity of nature, on the similarity of teaching and learning experiences." (Re 62)* What we do suggest is that when a decision to do research is made, then research should be taken in at the planning level, informed of the objectives to be accomplished, and given a voice in preparing the necessary conditions for testing the questions raised.

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*Letters and numbers in parentheses are references to works cited in Section II and Appendix A. A Re preceding the numbers indicates a work to be found in Appendix A. Additional Readings, an Abs preceding the numbers indicates a reference to be found in Section II--Abstracts of Pertinent Articles.

A reading of the articles dealing with instructional television research suggests some reasons for the difficulty of wedding performance and evaluation. First, the cost of producing and servicing a television course may preclude additional expenditures for research. There has been only one course which has made any money. Second, sponsors have been ambivalent at times regarding criteria upon which to measure effectiveness. This is especially true of open broadcasts where the question of what audience credit courses should service has not been definitely decided. Some pride themselves on large credit enrollments; others seem to lay stress not on the tuition paying student but on the casual viewer. Thus, the larger this viewing audience the more effective the course, and the criterion is in terms of drawing goodwill toward the course sponsor rather than learning of course content. (See Re 23 for discussion of this point). Third, there has been difficulty in controlling extraneous variables for research purposes. This problem has been magnified by the emphasis upon open broadcasts where viewers are not within easy reach of research personnel. Captive audiences seem to be best secured through the use of closed-circuit television.

What can be said about the studies which have been made? On the whole, the quality is disappointing. A great deal of this is due to the reasons listed in the preceding paragraph. A great deal more is due to lack of careful planning in executing evaluation. The most systematic and perhaps the best studies have been those which have been sponsored by the military or supported by foundation grants. In these cases, however, the controlling personnel have been researchers and almost all of the studies have been closed-circuit.

We will attempt to summarize findings in instructional television by asking a series of questions and answering these by reference to specific studies.

Do students learn by television?

This seems to be an unnecessary question, since the answer is obvious. This question, however, has been asked as part of several studies. Belson (Abs 7) found that after exposure to two 10 minute programs in a BBC information series, 70% of his sample of 250 showed "sufficient grasp of the full major main point" and 80% had a "sufficient grasp of at least a useful part of the full major point." Again Belson (Abs 8) found significantly more learning of French words and phrases after four TV broadcasts than controls who were not exposed. Rock, Duva and Murray (Abs 50) reported that all grades of officers and enlisted men reservists made significantly higher scores after exposure to a series of eight one-hour telecasts on combat operations. Stanley (Abs 57) found that in general a substantial increase in scores of 2nd and 6th graders on a true-false test occurred after exposure to one of a series of in-school viewing programs.

Ulrich (Abs 66) working with 8th graders found that television students did significantly better than a control group which was not exposed to the material. Snyder (Abs 55) reported that after taking high school credit courses, adult students passed 71% of 337 tests and failed 29% of them. 67% of the enrollees passed the English tests, 77% passed algebra and 74% passed World History. Taunenbaum (Abs 62) found that dentists exposed to TV or kinescopes scored significantly higher on an information test than a control group of dentists.

How do students taught by TV compare with those taught by other media?

The answer to this question is probably the best documented of all. On the whole, television students have done as well as other students and at times somewhat better.

a. TV vs. regular classroom lecture.

Evans, Roney and McAdams (Abs 17) found no significant differences in performances on final examinations between TV students and on-campus students in two subjects, biology and psychology. Anderson and Vander Meer (Abs 4) similarly found no significant differences on final examinations by high school sophomores being taught the functions of the slide rule by television and by regular classroom procedure. Carpenter and Greenhill (Abs 11) found no significant differences in regular semester examinations between TV and normal instruction students in chemistry and in psychology. They also found that in the psychology class, "authoritarianism" scores were lowered significantly after taking the course for both TV and non-TV groups but that the scores did not differ significantly between the two groups. Parsons (Abs 43) found no significant differences in achievement tests between TV, regular classroom and correspondence students in a child psychology course.

Rock, Duva and Murray (Abs) 49 working with Naval reservists found that TV students did significantly better than normal classroom students in one-half of the comparisons made on achievement tests. The subjects were a refresher course for officer pilots and a basic training course for enlisted men. There was no difference between TV and non-TV in about 30% of the comparisons. Non-TV students did better than TV students in about 20% of the comparisons. When non-TV students were compared with students exposed to kinescopes, 75% of comparisons on achievement tests showed kinescope students did as well or better than non-TV students, worse in 25%. Shimberg (Abs 54) using adult groups in a home nursing course found that television instruction was as effective as classroom instruction in teaching facts about home nursing, on a battery of written tests. On the performance test, the TV group did almost as well as the classroom group even though the total time spent was less for TV than for non-TV.

Pasewark (Abs 44) found that college students in a typing class taught by TV did significantly faster on typing speed tests than those taught in the conventional manner. This was true not only for the final test but for all timed speed tests during the course. Boone (Abs 9) testing Naval Academy students in two electronic courses found TV students produced significantly higher achievement scores than normal classroom students in one of the courses while normal classroom students did significantly better than TV students in the other course. Fritz, Humphrey, Greenlee and Madison (Abs 19) reported that army personnel taking about one-half of a radio electronics course by TV did as well as regular instruction students on an achievement test.

Allen (Abs 1) tested ROTC students taking a food service course and found that TV students taught by TV did slightly poorer than those taught by regular classroom procedures. No significance figures are quoted; however, the author states that the non-TV group was slightly higher than the TV group in academic standing which could account for the difference in scores. In another study in which significance measures are not given, Husband (Abs 31) reported that in a psychology of adjustment course, students taking the course through TV at home did better than two on-campus classes taught in the conventional manner. Students in three TV-classes at Purdue (Abs 12), analytic geometry, chemistry and bacteriology, did as well as non-TV students on tests over sections covered by TV.

Kanner, Runyon and Desiderato (Abs 36), using army basic trainees, found that for 14 hours of instruction involving eight different subjects, there were no significant differences in test scores of 12 of 17 tests between TV instruction and regular instruction basic trainees. In 5 of 17 tests, the TV group attained higher scores than the non-TV group. Stromberg (Abs 59) compared TV students in an introductory course with performances of previous classes taught in the regular manner. He found that the median score of TV students was higher than the median score of 1200 students who had taken the course previously on-campus. Finally, Willis (Abs 70) found no difference between TV and regular classroom students in high school mathematics and physics.

b. TV vs. in-studio classroom

Comparisons in the following studies are still between TV instruction and regular face-to-face instruction; however, the regular instruction groups are exposed in the same room as the TV cameras and other equipment, instead of in a normal classroom.

Carpenter and Greenhill (Abs 11) reported no significant differences in regular examinations between TV and TV originating room students in three courses, chemistry, general psychology and the psychology of marriage. A further report by these authors (Abs 46) again found no significant differences between TV receiving and TV originating rooms on test scores in chemistry (two classes), and economics. When they rotated students from TV receiving rooms to TV originating rooms in a business law course, no significant differences on test scores were found between those who stayed in the TV room, those who stayed in the TV originating room, and those who split their time between the two types of rooms.

Harshbarger and Becker (Abs 27) working with a political science course found that instructors for the course felt that there was no difference in achievement between those who were exposed by TV and those who received the course in the studio room. Tannenbaum (Abs 63) found no significant difference among medical students taking a physiology course as measured by an achievement test whether they were taught by TV or by lectures in the TV originating room.

In some preliminary work done at Purdue (Abs 12), the instructor for a political science course reported that there was "no discernible difference in student achievement" according to a test given to TV students and studio class students. Husband (Abs 31), as part of the study reported in the previous section, found that the TV studio group in a psychology class did the poorest of all when compared with a TV at home group and two on-campus regular classes. No significance data, is given, however. Similarly, Williams (Abs 69), using college students in Canada, found that the in-studio group did significantly poorer on an examination than those exposed to TV, radio or just reading the course material. Ambrosino (Abs 3), found no appreciable difference between high school students who received English, Chemistry or mathematics by TV or by studio classroom exposure.

c. TV vs. audio only.

There are only two studies reported where comparisons have been made on learning by television and learning by audial or radio means. Williams (Abs 69), as part of the study cited in the previous paragraph, compared an in-studio class, a group exposed through TV, a group exposed through radio and a group exposed through reading the lecture materials only. He found, in examining test scores, that TV students did significantly better than radio students, that radio students did significantly better than reading only students. The in-studio class obtained the poorest scores although the difference between this group and the reading only group was not significant. Frank (Abs 18) worked with Air Force pilot trainees. In a comparison of test scores on weather briefing data, students given the information by TV scored significantly higher than those receiving the data by radio.

Tannenbaum (Abs 62) working with dentists found there was no significant difference between dentists exposed to TV instruction and those exposed to the same lessons through a telephone hookup. A group which viewed kinescopes, however, did significantly better than the telephone group. Both the TV and kinescope groups did significantly better than a group which read the material only. There was no significant difference between those who read the material and those who listened to the lessons via telephone

d. Kinescopes vs. film

In a study accomplished with Air Force recruits in 1951, Jackson (Abs 33) found that when a film or kinescope was announced as a kinescope, students did significantly better on test scores than when a film or kinescope was announced as a training film. This was found to be true whether or not the presentation was in color. In 1955, Hurst (Abs 30) repeated the experiment with Naval recruits and found that there was no significant difference on learning whether the film or kinescope was announced as a kinescope or not. The explanation advanced is that the 1951 study was at a time when television instruction was still novel and motivation might have been heightened but that by 1955 the novelty effect was no longer a factor. In a kinescope versus TV comparison Tannenbaum (Abs 62) found that dentists exposed to kinescopes did significantly better than those exposed to live TV. A possible effect here is that the kinescope group received their lessons in one sitting while the TV lessons were spaced over two weeks.

What is the effect on retention of material learned through television?

No long term retention studies have been done with television. The longest period tested is eight months. Paul and Ogilvie (Abs 45) did a follow-up study of Canadian students (Abs 69) eight months after the end of the course. All four conditions of exposure showed significantly better scores than controls who were not exposed at all to the materials. The rank order of media still remained the same except for the in-studio group. TV students still scored highest, followed by the in-studio students, then radio and finally reading only students. The amount of forgetting among the four groups was not significantly different. It seemed that forgetting was porportional to the amount learned and was independent of the medium by which the information was acquired.

Rock, Duva and Murray (Abs 50) tested army reservists six weeks after exposure to TV lessons and found that officers retained 85% of the newly learned material and enlisted men retained 65%. No comparison group was used. Boone (Abs 9) found that Naval Academy students in two electrical classes when tested six weeks later showed no significant differences between TV students and regular classroom students. On the immediate posttest, it will be recalled, TV was significantly superior for one of the classes and non-TV students were significantly superior in the other. Although the differences were not significant, TV students did better than non-TV students on the retention tests.

Kanner, Runyon and Desiderato (Abs 36) as another part of their Army basic training study tested basic trainees one month after the end of instruction. In 10 of 14 tests, there were no significant differences between television and regular instruction students. In the remaining four tests, TV students were significantly superior to regular instruction students. Parsons (Abs 43) as part of his study tested for retention four months after the end of his child psychology class. Although there were no significant differences on the immediate posttest between correspondence, television (kinescope) and classroom groups; on the retention test, the correspondence group was significantly superior to the classroom group. The television group fell between these two groups in terms of scores but did not differ significantly from either the correspondence or classroom groups.

Ulrich (Abs 66) found that his 8th graders who had received the TV versions did significantly better than controls who did not receive the material. Differences in experimental TV versions were erased after 30 days although there were significant differences on the immediate posttest. (see under next heading) Anderson and Vander Meer (Abs 4) in their slide rule study with high school sophomores found that test scores of five weekly tests summed were significantly higher than final examination scores based on the same items for those exposed by TV. There was no significant difference between summed weekly scores and final test scores for the non-TV group. Finally, Mullin (Abs 42) working with 11th graders found that motivated students (for a cash award) retained significantly more after two weeks than unmotivated students when both were taught over television.

What methods of teaching in television are the most effective?

Brandon (Abs 10) compared three different methods of presenting information by television -- lecture, interview, and panel discussion. There was no significant difference among the three methods as measured by an immediate information posttest. Jorgensen (Abs 35) sought to determine the relative effectiveness of three methods of TV news presentation. In one version, the newscaster was used alone, in the second he used still pictures to illustrate his news, and in the third version the newscaster used motion pictures. A pre- and posttest of information was given. Subjects viewing all three versions registered significant gains in information but the three versions did not differ significantly from each other.

Home viewers of a course on making a dress (Abs 40) were exposed under four conditions. One group had TV only, another had TV plus personal encouragement from the county home economist through telephone calls and literature through the mail, the third had TV plus a supplementary booklet, and the last group had TV plus a supplementary booklet as well as encouragement from the county home economist. There was little appreciable difference between the four teaching methods tested. No data is given to support this statement, however. The subjects were all women in this study.

Ulrich (Abs 66), mentioned in the preceding section, tested for the relative effects of a straight lecture, the same lecture with visual aids handled by the instructor, and the same lecture with visual aids flashed on the screen. An immediate posttest by the 8th graders used revealed that the straight lecture version was significantly inferior to the two visual aids versions in transmitting information. There was no difference between the two visual aid versions. These differences, however were erased in the delayed test given 30 days later.

Rock, Duva and Murray (Abs 49) conclude, after analyzing program content on points which produced differences among experimental groups, that direct narration is effective. The authors found that those programs in which the instructor talked directly to the students with no use of dramatization tended to be superior to non-TV instruction. Animated film use was deemed to be effective. A combination of dramatic action and narration was held to be not as effective. In another study by the same authors, (Abs 50) they conclude that narration by itself or combined with some other form of teaching was extremely effective. The least effective means of learning was drama alone in the programs. Vernon (Abs 67), however, concluded that insertion of film excerpts which had action was the most effective.

Under what audience conditions does learning by television seem effective?

The Pennsylvania State University studies (Abs 46) have explored this question most thoroughly. They found that varying the size of the class fomm 14 students to 200 students in television receiving rooms did not have any effect on amount learned. It is not clear from this report whether the number of students per television receiver was varied or not. They report that no differences occurred among television groups due either to the amount of proctoring (none to full time) or kind of proctoring (peers, graduate assistants and faculty). There were no significant differences among TV students because of the kind of discussion arrangement (35 minute TV lecture followed by 15 minute class discussion led by graduate students, or two lectures a week followed by a full period of discussion). There were no significant differences among students sitting in the front, middle or rear of the studio classroom.

Tannenbaum (Abs 63) found some relationship between test scores and proximity to television receivers or to the lecturer but the findings were not conclusive. Mullen (Abs 42) in his study with 11th graders found that there were no differences because of place of TV exposure, at home or in class. However, he suggests that the unmotivated student may learn more in the classroom than he would at home with TV. The motivated student may learn more at home with TV than in the classroom. Vernon (Abs 67) in a series of programs on three different topics found that recall by subjects was less accurate the more discussion there was in the programs. The author suggests that one commentator giving facts and statements in a straight forward manner is probably best for learning.

Who learns best by television?

Kanner, Runyon and Desiderato (Abs 36) have made the strongest case for the superiority of TV instruction for low aptitude students. Basic trainees, divided into high and low groups on the basis of AGCT scores, were tested. For the high aptitude students, there were no significant differences between TV and non-TV groups. For low aptitude students, there were no significant differences in seven of the 17 tests. On 10 of the 17 tests, TV low aptitude students did significantly better than non-TV low aptitude men.

Boone (Abs 9) found with Naval Academy students that "poorer" men (based on pre-exposure scores on a prognostic test) did better by TV instruction than by normal instruction. Williams (Abs 69) divided his subjects into high, low, and average students based on academic standing. The same rank order for effectiveness of media was found regardless of ability--TV was best, followed by radio, then by reading and then by in-studio exposure. However, the low ability group exposed to TV did as well as the average ability radio group. The largest difference occurred in the high ability group where the TV group was much superior to the radio and reading groups.

Fritz et al (Abs 19) found, however, that there was no difference between TV and non-TV students in an Army signal corps course when subjects were paired according to high and low aptitude and information scores.

How important is intercommunication or feedback?

There are very few studies which have attacked this problem directly. The studies at Penn State (Abs 46) compared students in an ROTC course on achievement tests between those who had an opportunity to use a two-way microphone and those who did not. No significant difference was reported. Purdue University (Abs 12) attempted to provide talk-back facilities in their experiments but the phone system was not deemed satisfactory by the students.

In a study designed to encourage discussion, Harshbarger and Becker (Abs 27) found that more students in the studio classroom indicated a desire to participate or actually did so in the discussions than in the TV rooms. Proportionately twice as many in the studio class participated compared to TV classes.

Fritz et al (Abs 19) in their survey of TV use in army training recommend that talk-back facilities be provided only when indispensable. Making intercommunication available, the authors reported, often resulted in trite and immaterial questions. This recommendation is supported by the Rock, Duva and Murray study (Abs 49) which found that the use of a microphone for direct communication with the TV instructor resulted in a lot of trivial questions. Kanner, Runyon, and Desiderato (Abs 36) in another military study noted the kinds of questions asked in regular classes. They concluded that most of the questions from the class could be eliminated if adequate preparation and planning went into the lesson plan of the instructor.

Kelly and Conrad (Abs 37) tried to substitute for intercommunication in their study with in-school viewing. They concluded that an experienced teacher could attain empathy with TV students, expecially young pupils, and anticipate the kinds of questions pupils would ask. They found the interviewer technique to be the least effective in substituting for talk-back. A panel of peers was used to simulate a classroom atmosphere in one condition. The authors stated that this was an adequate substitute if the panel were unrehearsed and spontaneous. Wallen (Abs 68) reported on the feedback problem from the standpoint of the instructor. He stated that there was feedback enough from technicians and others in the studio to help gauge his presentation.

What kinds of subject matter are best taught over television?

Practically every field of instruction has been attempted by television. Nevertheless, there is very little evidence to point out the most fruitful subject matter areas for television transmission. Kanner, Runyon and Desiderato (Abs 36) tabulated items in tests used on basic trainees by the type of information measured and the presentation methods employed to impart the information. They found that television instruction was superior for teaching interrelationships among parts of equipment, teaching paired-associate or rote learning, giving recognition training, and teaching manipulation of small pieces of equipment.

Stanley (Abs 58) quizzed teachers whose classes had viewed in-school programs. They reported that demonstrations and lessons in science had higher value than other types for television instruction. Becker (Abs 6) surveyed school administrators on what kinds of TV programs for in-school viewing would be most profitable. The respondents listed science, social studies, and art as best for TV.

How are instructors chosen for TV teaching?

Heath (Abs 28) in a survey of educational institutions engaged in television instruction asked how faculty members are selected to perform on television. The most frequently mentioned factors were, the subject matter handled by the teacher, the teacher's personality, and the teacher's reputation as a good teacher. Kelly and Conrad (Abs 37) had teachers rated as outstanding perform for in-school viewing. They concluded that a good classroom teacher was also a good TV teacher.

Gable (Abs 20) in discussing her experiences as TV coordinator for the Philadelphia public schools implies that good teachers in face-to-face teaching make good TV teachers. She concludes that in picking a staff for instructional television, the preference should be to pick teachers to learn TV rather than to pick TV staff personnel to learn instructional procedures. Fritz et al (Abs 19) recommend that in selecting instructors for TV, the first consideration be given to a thorough knowledge of the materials to be taught on the part of the individual.

In a recent article, Runyon and Kanner (Re 141) state that television instructor requirements are the focus of ongoing signal corps research. The feasibility of using totally inexperienced men as instructors on TV with the aid of a teleprompter is being investigated.

What are attitudes toward learning by television?

Studies of attitudes toward television of persons who have been students in TV courses should be interpreted with extreme caution. In most of the cases, respondents are asked to make a comparison with other courses they have had. The effect of the immediate experience of television instruction may result in higher ratings in favor of television. In a great many of the studies, a study of attitudes toward television instruction is a minor appendage to the main part of the study and is usually limited to one five point rating scale.

Allen (Abs 1) found that a majority of the students who received television instruction (31 out of 53) thought the material was about as easy to learn when presented on TV as compared with classroom instruction. Eleven thought learning easy or very easy and 11 thought learning by TV was difficult. Forty-five of the 53 thought the TV lessons were about the same or more interesting than other similar training periods. Eight of 53 thought the TV hours dull.

Carpenter and Greenhill (Abs 11) found that a majority of the students exposed to TV thought they were learning about the same or a little less through television. There were no significant differences in achievement test scores between TV and non-TV groups. When students who took general psychology ranked psychology with other courses in terms of contribution to their own educational advancement and of liking psychology, those who had received the standard lecture rated psychology significantly higher than TV students.

Evans (Abs 15) in a psychology course found that 70% of the TV class expressed a willingness to enroll in another TV course. Rock, Duva and Murray (Abs 50) found that 80% of the reservists who took TV instruction thought the series interesting or very interesting. About 75% preferred to be taught by TV than by conventional methods. Frank (Abs 18) found that pilot trainees preferred TV to audio in receiving weather information, and Fritz (Abs 19) found signal corps students favorable to instruction by TV after taking TV courses.

A highly suggestive finding is reported by Parsons (Abs 43) who asked students who took his course by correspondence, by television and by regular classroom to state their preference among the three modes. A highly significant correlation was found between preference and the mode of instruction to which subjects were exposed. Correspondence course students preferred correspondence, TV students preferred TV and regular classroom students preferred classroom instruction.

In a comparison of three modes of television presentation, Brandon

(Abs 10) found that the interview and panel discussion methods were rated significantly more interesting than the lecture method. However, there were no significant differences in the amount of information communicated by the three methods. In a similar study, Jorgensen (Abs 35) found that the newscaster alone technique received the highest, newscaster with still pictures next, and newscaster with films decidedly lowest in approval by subjects. Again, information tests showed no significant difference among the three modes of presentation. Willis (Abs 70) found that teachers, whose high school classes were exposed to TV instruction, felt that TV was less effective than regular classroom instruction. There were no significant differences between the two types of exposure on tests, however.

Preferences in the few studies toward length of TV instruction generally found students preferring the length to which they had been exposed. Thus Allen (Abs 1) found most students agreeing on one hour as the maximum for any one TV session. They had taken a course in which each lesson was one hour. Students in a course put on by San Francisco City College (Abs 14) showed a preference for a 30 minute session. The course was given 30 minutes each session. They also preferred the day of the week and the time of presentation of this course. Gable (Abs 20) found that teachers prefer a 15 minute in-school session for primary and 30 minute session for elementary and secondary grades.

What do we know about audience size?

The number of viewers of a television course is quite large in the surveys conducted and it is small wonder that some educators wax so enthusiastic about teaching over television. Barden (Abs 5) reports a Videodex Inc. survey during the fall of 1951 on two courses, psychology and comparative literature.

The number of sets tuned in to the telecourses five days a week was estimated at 27,500 in the Cleveland area.

San Francisco City College (Abs 14) reported 25,000 sets out of 130,000 sets actually in use tuned in to their adult psychology course in the spring of 1953. The Pulse, Inc. survey estimated the number of viewers per set as two persons. Halpern (Abs 21) conducted two audience surveys of Cleveland residents in the spring of 1953. He found that approximately 6000 adults viewed the telecourses each day. This figure was estimated at 20% of those who view at the time the telecourses were put on.

Harris (Abs 26) in a child psychology course given in the spring of 1955 in Minneapolis had 20,000 to 25,000 viewers according to station estimates. Husband (Abs 31) taught a course in the psychology of adjustment in the winter of 1952 over WOI, Ames, Iowa. Spot surveys showed that the audience was at least 60,000. Lynch (Abs 39) projecting from a representative sample of the Detroit area estimated that one-half of the TV set owners viewed the University of Michigan Television Hour. Soop (Abs 56) in reporting on the same program states that station estimates placed the average viewing audience at 100,000 during 1950-1951. David (Re 153) lists viewers of WOI, Ames, Iowa telecourses from 20,000 to 60,000 for each of eight telecourses offered this far. Merrill (Abs 41) estimates that 372,000 or more viewers per week tuned in to 22 courses offered by 18 different institutions during the fall of 1954.

One should temper this, however, with results reported by UHF educational stations. Allen (Re 145, 147, 148) dramatically points up the plight of UHF educational stations with the results of coincidental telephone surveys of programming over WHA, Madison, Wisconsin. Out of 1767 calls completed on three consecutive nights, 12 were watching the WHA non-credit courses. In another coincidental survey, out of 223 calls made, three people were watching WHA. In another survey, out of 207 calls completed, three persons reported watching WHA at the time. Some of the trials of a station such as WHA are analyzed in a survey report by Stanley, MacLean, and Carter (Re 166).

What is the composition of the audience for telecourses?

a. Age. Most of the studies reported place the majority of viewers of telecourses in the age bracket 30 to 40. Allen (Abs 2) found the bulk of the registrants to two non-credit language courses were in their 30's and 40's. San Francisco City College (Abs 14) reported the average age of credit registrants for an adult psychology course was 36. Scothern and Harwood (Abs 53) found that 40 was the typical age for students of Dr. Frank Baxter's course on Shakespeare.

Western Reserve University in a summary of three years of giving telecourses (Abs 64) found the age range for telecourse students to be from 19 to 68 with the median age of 37. Wisconsin State College in surveys on two courses, political science and education, (Abs 60, 61) reported 143 out of 224 credit students were between the ages of 30 to 50. 117 out of 207 non-credit viewers were in this age bracket, also. Harris (Abs 26) found 50% of his auditor group in a child psychology course were between the ages of 30 to 40. Soop (Abs 56) placed 27% of the viewers to the University of Michigan Television Hour in their 30's and 26% in their 40's. In two home economics courses on making a dress, 58% of the feminine viewers of one of the courses (Abs 40) were in the age range 25-45, and approximately 60% were in the same age range in the other course. (Abs 47)

b. Sex. Telecourse viewers are predominantly female and are usually married. However, the time of day when the courses are given determines this to a large extent. Most of the telecourses broadcast over commercial stations utilize the morning and early afternoon hours.

Allen (Abs 2) reporting on two evening courses in language, however, found females outnumbered males in a ratio of 4 to 1 and 5 to 3 for the two courses. A San Francisco State College (Abs 14) reporting on an early evening course found 131 women and 40 men finished the course for credit. The University of Michigan Hour (Abs 56) reported 929 males and 568 females registered in a non-credit biology course. This was a Sunday afternoon program.

The rest of the courses, evidently all given in the morning and early afternoon were largely women. Wisconsin State College (Abs 60, 61) had 82 women and 29 men in one credit course, 107 women and six men in the other credit course. Scothern and Harwood (Abs 53) reported 80% of the students in Baxter's Shakespeare course were women and that 75% of these were married. Out of 2511 credit and non-credit students in 15 courses given over a three year period, Western Reserve University (Abs 64) found 2357 of these to be women and 154 to be men. Harris (Abs 26) had three male students out of 56 registered for credit.

c. Education. The average number of years of schooling for telecourse viewers is about 13 to 14 years. Some of the breakdowns reported are as follows: San Francisco City College (Abs 14)--out of 171 students, 85 were taking their first college course, 22 had had less than two years of college and 64 had had more than two. Western Reserve University (Abs 20)--students of two courses averaged slightly more than one year of college. Harris (Abs 26)--

--auditor group to a child psychology course had 3% with less than an 8th grade education, 20% some high school and high school graduates, 39% some college, and 28% college graduates. Lynch (Abs 39)--a considerable number of high school and grade school background people viewed the University of Michigan Hour but college educated persons were most likely to view. Schermerhorn (Abs 51)--median schooling for a sociology course was $13\frac{1}{2}$ to 14 years. Scothern and Harwood (Abs 53)--the average student had had two years of higher education. Western Reserve three year summary (Abs 64)--82% of students had finished high school, 11% had finished college.

What is the amount of viewing by the audience of telecourses?

Viewers of telecourses do not see all of the programs in a series even if they are enrolled for credit. Attrition rate for courses is given in only a few instances. In one of the very few reports to trace drop out during a telecourse, San Francisco City College (Abs 14) had 362 persons apply for and receive registration books for a 15 week one semester credit course in adult psychology. 227 of these returned registration books and received the first mid term examination. 188 returned the first mid term examination and received the second examination. 171 returned the second examination and received the final examination. 164 completed the final examination. Of this number five received failing grades.

Allen (Abs 2) in a survey on a German and a Spanish language non-credit course over WHA, Madison, reported that 66% of the Spanish and 87% of the German viewers saw over one-half of the programs. 30% of the Spanish and 63% of the German viewers saw over three-fourths of the programs. Belson (Abs 8) found that the average number of programs viewed in a four program BBC series was 1.6. Harris (Abs 26) found 70% of his auditor group reported viewing his course almost every time, and 17% stated that they viewed at least once a week to his twice weekly course.

Scothern and Harwood (Abs 53) reported that for Baxter's Shakespeare course, one-fourth of those who enrolled for credit did not finish the course. Stromberg (Abs 59) had 66 students registered for his psychology telecourse (at a cost of $48). Thirteen of these dropped during the first weeks. Ten failed to complete the course, ten asked for additional time to complete the written work and 35 presented themselves for final examinations. At the same institution, Western Reserve University, the totals for credit students for 15 courses was 289 during a three year period. Of these 209 completed the courses, 46 withdrew and 34 received incompletes.

Pollock and Meloche (Abs 47) investigating viewers to a 23 session home economics course found the great bulk of their sample of women viewed more programs during the first half of the series than during the last half. The number of programs viewed by the 156 women were: five or less--20, six to 10--26, 11 to 15--47, 16 to 20--39, and 21 to 23--24. Wilson and Moe (Abs 71) interviewed women for another sewing series of 11 lessons. They found that nine out of 10 saw at least one of the programs. Eight in 10 saw the first program in the series, six out of 10 saw the second, and five of 10 saw the third program in the series. Thereafter, about one-third of the total audience saw each program. For all 11 programs, the number of viewers in the sample was 40%.

Halpern (Abs 21) seeking correlates of steady viewing found no relationship between steady viewing of telecourses and economic status, size of the family, children at home, age, and level of initial motivation. Compared with those who stopped viewing, steady viewers were better educated, had spouses with more education, been away from classroom schooling for a shorter period of time, and had less learning distractions at home.

What is the best way to publicize television courses?

Two studies report on how students heard of the television courses being offered. Interestingly, in both of these cases, the medium recruited its own students. San Francisco City College (Abs 14) found that credit registrants had heard of the program most often either by an announcement on the TV station or through accidental tuning to the program. Twice as many heard of the program in this fashion as the rest of the methods combined. Next highest medium of hearing of the program was word of mouth. This was followed by notices mailed by the college and then by newspapers and magazines. Scothern and Harwood (Abs 53) found that students for Frank Baxter's Shakespeare course first heard of the course through television. The number who heard of the course in this manner equaled the number who heard of it through word of mouth and newspapers combined. About 10% first heard about the series through mailed folders sent out by the university.

What are the most liked features of telecourses?

Allen (Abs 2) found that the instructor was mentioned most often as the most liked feature of the presentations in two language courses. The most effective method of teaching the languages reported by the respondents was drill and vocal practice techniques. The San Francisco City College viewers (Abs 14) in listing the three things liked most about the adult psychology course gave the instructor the most mentions. This was followed by the on-set class used and the mode of presentation.

Kelly and Conrad (Abs 37) reported that for their series of in-school programs, demonstrations and the showing of live children seemed to be the general factors which tended to account for choices of interesting items. Stanley (Abs 57) also reports that the showing of other children on the in-school programs arouses viewer interest. Becker (Abs 6) lists the following possible causes for an in-school series' popularity--greater deviation from lecture-type programs, unusual visual aids, demonstrations, and the use of a variety of persons on the program other than the regular program personalities.

What tips on TV presentations do we have?

a. TV receiver. Receivers should be four and one-half to six feet above the floor--Lewis (Abs 38). It should be 54 inches off the floor slanted down and in towards the class--Allen (Abs 1). Not more than 20 persons should view on one receiver--Fritz (Abs 19).

Teachers prefer 21" screens for in-school viewing. Viewing should be in a classroom and not in an auditorium--Gable (Abs 20). Nineteen inch or larger receivers should be used for class viewing but large screen projection should not be used--Fritz (Abs 19).

b. Use of color and contrast. Color does not add anything to the gray scale. Extreme contrasts of gray are effective and if color is used, yellow on black makes for good visibility--Allen (Abs 1). Black on white should be used for training aids. On large charts, contrasting shades of gray should be used. Gray on a brown background is highly effective--Fritz (Abs 19). Dull gray against dull dark gray should be used for visual aids. Too great or too little contrast should be avoided--Jackson (Abs 34).

c. Visual aids. Only one panel of a blackboard (five feet wide) should be used at a time--Carpenter and Greenhill (Abs 11). Soft white chalk should be used for board work. If available, yellow chalk used on a green blackboard stands out well--Fritz (Abs 19).

It is apparent that a great many gaps exist in our knowledge about teaching by television. We know some things, as shown in the studies reported above. We need to know a great deal more. A striking feature of the studies is the lack of dependence upon prior research accomplished in other fields, notably film research. It seems also that there is a lack of communication among those who do research in television. Replications are needed, of course, but a surfeit of replications in face of challenging problems elsewhere seems wasteful. Perhaps occasional summaries such as this report will help to focus attention on neglected areas.

A great deal of attention should be devoted to the effects of in-school viewing programs. There are very few studies which have investigated this area. A question which suggests itself here is the relationship of television teachers to pupil attitudes. What conceptions about the wisdom and omnipotence of a television teacher do pupils have? Is conviction more easily established by television teachers than by regular classroom teachers? This type of question is especially important in such subjects as social studies where the purpose may be largely to instill attitudes rather than to teach a body of factual knowledge.

Another large area of research is the question of the casual viewer of telecourses. Rather large audience figures are quoted for some courses. A characteristic of this audience in comparison with regularly enrolled viewers is the lack of regularity in viewing. What kinds of learning take place with these viewers who may see only a few programs in a series? Some advocates of instructional television are enthusiastic about the spread of higher education through the use of telecourses because of the size of the casual viewing audience. It would seem that unless each program in the series were a complete unit of teaching, some misconceptions may arise among the casual viewers and the "rubbing off" of education onto these people may result in untoward results. For example, during the development of a course such as social psychology, a great many statements are made about social relationships that need to be weighed in the light of other factors analyzed during the entire course. What of the casual viewer who tunes in once or twice to such a program? It is possible that a boomerang effect may take place with these persons.

It has been said that the demands of teaching by television improves the quality of teaching (See Re 32). This may be so, but if the reason for this statement is the fact that 50 minutes of classroom instruction can be squeezed into 30 minutes or even 15 minutes, then this statement needs some investigation. We have very little evidence that the television student learns as much as the normal classroom student when the time differential is in favor of the classroom student. In the majority of the studies reported which have been done with any care at all, the comparison has been between television and regular classroom instruction both having the same instruction in the same length of time. In some telecourses, a three semester credit course is given once a week for 30 minutes in comparison with the normal on-campus procedure of three 50 minute sessions a week. If in this comparison, television students do as well as on-campus students, then perhaps a review of on-campus teaching methods is in order.

A great many more questions can be raised in connection with instructional television research. It is heartening to note the increased number of studies specifically designed to explore many of these areas. However, in the final analysis, a great deal of the future of instructional television will depend upon the verve and vision of educators who will sponsor television activities.

SECTION II

Abstracts of Pertinent Articles

1--Allen, M. R. *Quartermaster training command educational-television study.* Fort Lee, Va.: Quartermaster School, Quartermaster Training Command, 4 June 1954. (duplicated)

Method: Purpose of the experiment was to explore the feasibility of teaching Quartermaster Corps subjects via television using low-cost methods. A course of four hours was selected--"Food Service Activities in the United States Army"--and telecast over KUHT to ROTC students and a small group of reserves. Forty-seven ROTC students received the instruction via TV and 60 ROTC students received the instruction through the regular classroom method. Out of 500 reserves notified about the series, 42 participated. The same instructor, instruction and scripts were used for any one day's presentation. The TV students were split into three classes as were the non-TV students. Thus in any presentation, five such lectures were given; three different classroom hours, one television presentation to two classes of TV students (viewing in different rooms) and an additional TV presentation for the third TV class. Another small group, not included in the analysis, viewed some of the lessons on TV and received the rest of the instruction in the regular classroom. No pretest was given; however, all students took a 32 item multiple-choice and true-false examination four days after the conclusion of the four hour course. In addition, the TV students executed an "acceptability" questionnaire on the use of TV. The reserves who viewed the program completed a survey questionnaire.

Order of presentation was for the instructor to give two regular classroom presentations, then a TV presentation, another regular classroom presentation and then a final TV presentation. The same instructor taught all five sessions for the four days. In the TV presentations, four students were present during telecasting to simulate a classroom atmosphere for the instructor.

Findings: Out of a possible score of 32, the regular classroom method students scored 27.7 and the TV students 26.5. (No significance tests were evidently applied) Author states that there was a very slight difference between the two groups favoring the classroom group but that when comparing the academic standings of the two groups, the classroom group was higher than the TV group. This, the author states, could account for the difference between the two groups.

The ROTC TV students replied on the "Acceptability" questionnaires that the television lessons were about the same or more interesting than other Reserve ROTC training periods. Only eight out of 53 thought the hours dull.

From a learning point of view, 31 thought the material was about as easy to learn when presented on TV as compared with classroom instruction; 11 thought learning was easy or very easy; and 11 thought learning by TV was difficult.

Most of the students thought one hour was the maximum for any one TV session. Other comments by the students were generally favorable.

Reserve officers rated the programs superior to very good (34). Seven rated the programs as fair. None rated them as poor. Comparing the programs to regular reserve training periods, 24 believed the TV programs were much more interesting, or more interesting and 17 felt they were about the same. Thirty-four found the live TV programs were instructive or about the same value as the average training film while seven believed the TV programs to be less instructive. Other written comments were generally favorable.

Author comments that experienced classroom instructors sometimes forget to allow sufficient time for cameramen to follow them in using aids, writing on the blackboard or making points on charts. Colors which appear to be best were yellow on black, extreme contrasts of gray (dark and very light) and off-blue-black on buff or beige. White reflects too much. Author further states that for classroom viewing, the TV set should be at least 54 inches off the floor slightly canted, slanted down and in towards the students.

2--Allen, W. H. Spanish and German by television. Modern Language Journal, 1956, 40, 139-142.

Summary of two language non-credit courses given over WHA-TV, Madison, Wisc. Author conducted phone and personal interviews which covered about 72% of the 197 registrants for the two courses.

Courses were presented once a week for 10 weeks. Spanish was presented on Tuesday evening and German on Monday, each for one-half hour. Enrollment fee was $2. One hundred twenty-one were registered for Spanish and 76 for German. A home study manual was prepared for both courses.

Registrants were evenly distributed by occupation of the head of the household, being predominatly in the "professional, semi-professional-proprietor-managerial, and in the clerical-sales occupation groups." Women outnumbered men, the ratio for the Spanish course was four to one and for the German course five to three. There were three housewives to every two employed persons in the Spanish course but only one housewife to every two employed persons in the German course. About 85% of the registrants were at least high school graduates. The average age of the Spanish registrants was nine years greater than that of the German. The bulk of the registrants were in their 30's and 40's.

About 66% of the Spanish and 87% of the German registrants viewed over one-half of the programs. The percentages for those who viewed over three-quarters of the programs were 30 for Spanish and 63 for German. There was a high incidence of reading the home study guides. More registrants read all of the guide than viewed all of the programs.

In the homes of the registrants quite a few additional family members also viewed the programs. Eighty-five per cent of the German-viewing families and 67% of the Spanish-viewing families had additional members watching. In over one-fifth of the families, at least one other family member used the home study guides.

About 67% of the registrants stated that the courses gave them the kind of instruction they wanted. The instructor was considered to be the "most liked" feature of the presentations. The most effective method of instruction was drill and vocal practice techniques. The factor most criticized was "too rapid pacing" of the instruction.

3--Ambrosino, M. J., Dunstan, W. H. and Haake, B. F. The Schenectady experiment. A report of the closed circuit television project conducted by the Schenectady Public Schools and the Fund for Advancement of Education. Schenectady, N.Y.: The Schenectady Public Schools, 1956. (duplicated)

Report on Phase I of a projected three part study of high school teaching by closed circuit television. Beside the evaluation of specific courses, the report discusses equipment requirements, installation hints, lighting and audio hookups and other suggestions to guide schools interested in setting up closed circuit systems.

Method: Four subjects--conversational French, English, chemistry and mathematics--were taught for varying lengths during the spring semester, 1956. Two way sound systems were provided for each of the classes. French, an elective course, was taught for the whole semester with approximately 50 students. Students rotated between the studio classroom and the remote classrooms. This course was not evaluated evidently since no report is mentioned in the evaluation section.

English, a course in composition, was taught for four weeks. Sixty-five students were distributed among one studio classroom and two remote classrooms. The students were given a pre- and posttest using the Cooperative English Mechanics of Expression test as well as a scrambled theme outline to arrange in order, and a composition written from this outline.

Chemistry had 27 students equally divided between the studio classroom and a remote classroom. Televised instruction was held for six weeks. Two forms of the Anderson Chemistry test were used as pre- and posttests. Mathematics was televised for the whole semester and involved 42 students, one half in the studio classroom and the other half in the remote classroom. The Cooperative Intermediate Algebra and the Cooperative Plane Trignometry tests were given as pre- and posttests.

Teacher-observers were assigned to each remote classroom. These persons made daily observation reports on picture and sound quality, pupil attention and motivation, and recommendations for improvement.

Findings: No significance data is given for any of the studies. In general, there seemed to be no appreciable difference because of mode of exposure. The remote classroom groups in English, chemistry and mathematics did about as well as the studio classroom groups. There is evidence that average IQ of the groups was a better predictor of knowledge gain than type of exposure. Differences between groups are very slight in all instances, however. All groups, regardless of type of exposure, registered gains in scores from pretest to posttest. Since no comparisons are made with groups which received regular classroom instruction unencumbered with television equipment, there is no way of telling whether these gains are better or worse than regular classroom instruction gains.

4--Anderson, G. R. & Vander Meer, A. W. A comparative study of the effectiveness of lessons on the slide rule presented via television and in person. The Mathematics Teacher. 1954, 47, 323-327.

Method: Five classes of high school sophomores ranging in number from 21-26 were selected to take part in a TV experiment. The objective was to see how TV instruction on certain computational skills with the slide rule compared with the ordinary classroom method. Each student was given the California Test of Mental Maturity and Stanford Achievement Test on advanced arithmetic before the class started. Unknown to the students, two matched groups were selected on the basis of scores on the tests. There were 41 in each group, 23 boys and 18 girls in the non-TV group and 24 boys and 17 girls in the TV group.

Six one-half hour programs were prepared and given over a six week period. The TV group received instruction seated in their regular classrooms in the morning. Later that day, the same instructor gave his lesson in the normal way to the non-TV groups. A five-item test was given at the end of each program. The sixth program in the series was to be devoted to a review and thus did not have an examination. As it turned out, the results of the tests on the first lesson were so low that this lesson was repeated in lieu of the review. A final examination was given the day after the series. It consisted of the items from all five tests given.

Findings: When the final examination scores were compared between the TV and non-TV groups, there was no significant difference. Further analysis revealed no significant differences when the two groups were broken down by sex or grouped by intelligence test scores. It is interesting to note that none of the groups scored as high as 50% on the final examination of 25 items. Authors present various reasons why better learning did not take place.

When the weekly test scores for both groups were summed and compared with the final examination scores, a significant decrease in score was obtained with the TV group. There was no significant difference in the sum of weekly scores and the final examination for the non-TV group.

5--Barden, J. P. Instruction by television and home study. School & Society, 1954, 74, 374-376.

A review of television courses conducted by Western Researve University during the fall semester of 1951. (See abstracts by Remenyi, Stromberg, and Wallen for personal reactions to teaching in this series)

The Western Reserve program consisted in the fall semester of 1951 of two courses conducted for credit over a Cleveland commercial TV station. Time given for the courses was 9-9:30 five mornings a week. The introductory psychology course was taught by three instructors on the Monday-Wednesday-Friday sequence offering three semester hours credit. The Tuesday-Thursday sequence was a comparative literature course offered for two hours credit.

The set for these broadcasts (built to simulate a study of a professor) cost less than $500. Production and direction done by chairman of the department of dramatic arts. Photographers and technicians of the commercial station used. The station contributed saleable broadcasting time and technical personnel amounting to $13,338. $10,000 worth of telecast advertising time also contributed. All other expenses underwritten in advance by seven businessmen in Cleveland plus a local foundation. Receipts from registration were above expenses if cost of broadcasting time and advertising to the commercial station excluded.

In a commercial survey made by Videodex, Inc., the number of sets tuned in to the telecourses five days a week was estimated at 27,500, for a rating of 5.5.

Eight hundred thirteen students registered for the two courses either on a credit or non-credit (auditor) basis. Sixty-one of these were credit students in psychology and 42 were credit students in comparative literature. Written work for these 103 credit students mailed in for criticism and grading. Six to eight times more written work required for a telecourse than for the same course given on campus, although television time ran a little less than half that of comparable on-campus courses. All credit students must appear on the campus for a final examination.

Reports received of discussion groups gathering at various homes after presentations or of two-person discussions by telephone after each class. Libraries reported to have had "unprecedented" demand for books on the television course lists.

The psychology course used visual aids and demonstrations but the comparative literature course was straight lecture. The literature course had 31 per cent of the total credit enrollment. Author says that this tends to show that good teaching, without any gimmicks, is effective television showmanship. He states that only courses requiring actual work in a campus laboratory are excluded as possibilities for instruction by television and home study.

6--Becker, S. L. Exploratory studies in the evaluation of educational telecasts. Proc. Iowa Academy of Science, 1954, 61, 341-347

Method: A questionnaire survey was carried out on the Guidance series, telecast for in-school viewing on Iowa TV Schooltime, produced by the Iowa Joint Committee on Educational Television. Questionnaires of an appropriate form were mailed to 622 junior high school students in 14 schools sampled from schools known to have viewed the programs on guidance. Thirty-seven junior high school teachers who had utilized the Guidance series in their classes were also queried. Fifty-six principals and superintendents of schools and school districts within a 25 mile radius of the transmitter who had earlier indicated that their schools were using none of the Iowa TV Schooltime programs were sent questionnaires.

Returns on the different questionnaires were 75.2% for students, 70.3% for teachers and 75% for school administrators.

Findings: Although none of the administrator respondents were using the Iowa TV Schooltime series, 64.7% stated that there was a need for educational television programs in the classroom. When they were asked if the need were great enough to recommend purchase of TV sets for classrooms to school boards, the number saying yes dropped to 40.6% with another 9.5% giving qualified answers.

Science, social studies and art, in that order, were the three subject matter areas in which administrators thought TV programs would be most profitable. There was little agreement among teachers as to which programs were most effective in imparting information. There was even less agreement between these ratings by teachers and the order of ratings of pupils when they were asked which two programs they liked the best. This discrepancy between felt effectiveness in learning and liking of programs presents an interesting area of research, according to the author.

An evaluation of programs which students liked best and liked least produced the following possible causes for a program's popularity:

1. Greater deviation from lecture-type programs.
2. Unusual visual aids.
3. Demonstrations.
4. A variety of persons on the program other than the regular program personalities. Use of children of the same age as those viewing is especially effective.
5. Decreased use of technical terminology.

Some of the other clues to program effectiveness garnered from teacher responses:

1. 42.35% said visual aids used effectively.

2. 30.75% said material was presented in a logical sequence.
3. 30.7% said students were very interested in the subject matter.
4. 19.2% said the language was suitable.
5. 19.2% said the programs were related effectively with the course.
6. 11.5% said the programs were humorous.

Reasons for non-effectiveness were generally the reverse of the above.

7--Belson, W. A. "Facts and Figures" The comprehensibility of two programmes in theFacts and Figures series. London: British Broadcasting Corporation, An Audience Research Report, VR/55/411, March 17, 1955 (duplicated).

Method: The study undertook to measure the comprehension of items on two programs in a series of monthly ten minute television programs dealing with economic trends and national facts and figures. Each program presented in diagrammatic fashion with spoken commentary, a series of independent units of information, about eight such units to a program. Films of these two programs were shown to about 550 subjects. These subjects were from four occupational levels in equal numbers--professional, highly skilled, skilled and moderately skilled. Subjects were tested in groups about 40 at a time.

The films were shown to the subjects but the projection was stopped after each unit of information. Subjects were then required to answer in writing some questions about the "main points" of the unit they had seen. Two matched groups were shown four different units apiece. (Units were about such things as changes in retail prices, wage rates, foreign trade, gold and dollar reserves, number of men compared with the number of women, birth rates, etc.) Although details about the type of questions asked is not given, the author states that the questions were designed "to gauge understanding and not merely repetition of what the commentator had said." Questions on details included in each unit were also given.

Another 250 viewers were assembled to test the effect of the number of items upon comprehension. Up to six units preceded the testing unit in one case, and up to six units followed the testing unit in the other.

Findings: Results were divided into three categories--"A really good grasp of the full major point," "At least a sufficient grasp of full major point," and "At least a sufficient grasp of a useful part of full major point." Seventy per cent showed a "sufficient grasp of the full major point." Eighty per cent had a "sufficient grasp of at least a useful part of the full major point." The difference according to occupational level was small although there was a tendency for scores to rank from the highest occupational level (professionals) to the lowest (moderately skilled) tested. No significance figures are given in any instance. There was a "high" level of recall for the details presented in the different units (73% for the total group).

There was no tendency for comprehension of a unit's main points to decrease as the number of units preceding it grew in number from 0 - 6. There was a "slight tendency...for the understanding of a major point to increase through the presentation of preceding units, presumably because the preceding units progressively increased the viewer's familiarity with the diagrammatic form of presentation." Results also showed that a unit could be followed by up to six other diverse units without a viewer's grasp of its major point being interfered with in any way. On questions of detail, however, the amount of recall decreased as the number of preceding units increased. The same was true of the influence of following units on recall of detail of the testing unit.

8--Belson, W. A. Learning and attitude changes resulting from viewing a television series "Bon Voyage." British Journal of Educational Psychology, 1956, 26, 31-38.

Method: A series of four TV broadcasts dealing with useful words and phrases in French and information about travel to France was given over BBC during a one month period. The study attempted to measure: (a) the extent of learning of the French words and phrases presented during the broadcasts, (b) the learning of general information, and (c) the reduction in apprehensions about language and other difficulties involved in making a trip to France. A posttest only design was used with 100 experimental and 120 control subjects. Experimental subjects were those who had seen one or more of the programs in the series. The tests used were: (a) writing English equivalents to 26 words and phrases in French which had appeared on the series, (b) choosing from six alternatives the correct equivalents for each of the same 26 words and phrases, (c) answering questions about 29 facts presented in the series, and (d) answering on a five point scale agreement or disagreement to 28 attitudinal statements about travel to France.

Findings: Adjusted scores of the control group were used as a baseline to measure learning and attitude change of the lower group. No breakdown by total amount of viewing is analyzed. The average amount of viewing for the experimental group was 1.6 programs out of the four. Although differences were small, there were significant differences in favor of the viewing group on the two tests about French words and phrases and on the information test. On the attitude test, there was a significant increase in apprehension about making a trip to France. Author explains this finding by suggesting that "far from being conscious of difficulties, the bulk of this audience had not, prior to the broadcast, given any informed thought to what actually would be involved in such a visit...what the programme seems to have done is to introduce the viewer...to the new and bewildering situations in which she would, as a foreigner in France, find herself."

9--Boone, W. F. Evaluation of the U. S. Naval Academy educational television as a teaching aid. Annapolis: United States Naval Academy, 7010 7-26-54, 29 October 1954 (duplicated.)

Method: Six battalions of midshipmen at the Naval Academy were used in an experiment with closed circuit TV. Two courses, "Transients in Electrical Circuits" and "Wave Shaping Circuits," taught midway in the second term were chosen as subject matter. Each course was 25 minutes long. The battalions of about 140-men-each were each split into two. While one-half received television instruction, the other half received the normal lecture. The normal lecture groups were taught by their regular instructors. For the second course, the groups which received television instruction were taught in the regular fashion while the non-TV groups were exposed to TV.

Before the start of each course, each student was given a prognostic test of ten minutes to determine initial learning level. Immediately after the lecture, the students were given a 15 minute achievement test. All questions were of the multiple choice type. The prognostic test contained 10 items, the achievement test contained 15 items covering both the material on the prognostic test and material covered in the lecture. Six weeks later, the achievement test was readministered.

Findings: Analysis of covariance was accomplished. As measured by the prognostic test scores, the TV group was not as well prepared as the non-TV group for the class "Transients in Electrical Circuits." After exposure, the TV group showed a significant superiority beyond the 1% level over the non-TV group. On the retention test, the TV group still scored higher although the difference between the two groups was not significant. In a comparison of regression coefficients of the two groups, the TV group had the smaller regression coefficients for both the achievement and retention tests. "This would seem to indicate that those instructed by TV had less dependence on their initial amount of knowledge. The poorer men gained more from TV than a comparable man gained from his regular instructor."

For the course, "Wave Shaping Circuits," the prognostic scores again showed the non-TV group better prepared than the TV group. The difference again was not significant. In the immediate posttest, the non-TV groups still remained superior. The difference between the non-TV and TV groups on the achievement test was significant at the 5% level. By the time of the retention tests, however, this difference was obliterated. The TV group, in fact, did better than the non-TV group although the difference was not significant. Regression coefficient comparisons showed that the TV group had a higher regression coefficient than the non-TV group. The retention test showed a reversal for the TV group had a lower coefficient than that of the non-TV group.

10--Brandon, J.R. The relative effectiveness of lecture, interview and discussion methods of presenting factual information by television. *Speech Monographs*, 1956, *23*, 118. (Abstract)

Method: Nine programs of 10 minutes each were kinescoped. Three speakers each presented a different program topic three times, once as a lecturer, once as an expert being interviewed and once as an expert participating in a panel discussion with a second expert and moderator. The nine programs were spliced together in 18 arrangements of three programs each in such a way that each one-half hour arrangement contained one lecture, one interview, and one discussion program. Further, each arrangement had one program of each topic and each of the three speakers. Analysis was done by six different 3 x 3 Greco-Latin squares.

Subjects were 72 male and 72 female college students. Four men and four women viewed one of the 18 arrangements. Each subject made an information posttest and an interest posttest score for the three topics.

Findings: The interview and discussion methods were significantly more interesting than the lecture method. Women expressed uniformly low interest in all of the lecture programs while men expressed more interest in at least one lecture than they did in its interview or discussion counterpart.

There was no significant difference, however, in the amount of information communicated by the three methods. Women scored significantly higher on the information posttests than men. Author says that it is likely that women knew more about the information in the programs prior to the experiment than the men.

Men and women did not differ significantly in the amount of interest over the whole experiment. There were no significant differences between them on amount of interest in the lecture, interview or discussion programs, nor in the amount learned from the three methods.

For both men and women, the least was learned in the first 10 minutes, and the most learned in the middle 10 of the half-hour program. There was a low correlation between interest and information attained.

11--Carpenter, C.R. & Greenhill, L.P. An investigation of closed-circuit television for teaching university courses. Instructional Television Research Project number one. University Park, Pa.: The Instructional Film Research Program, Pennsylvania State University, July 31, 1955.

Report is a summary of research conducted with three undergraduate courses utilizing closed-circuit television. In addition to experimental reports, there are sections dealing with such things as equipment costs, equipment operation, and a review of other closed-circuit uses at Penn State. Study was supported by a grant from the Fund for the Advancement of Education.

Method: Three classes, the second semester part of an introductory course in chemistry, general psychology, and the psychology of marriage, were used for testing purposes. In the chemistry course, students met for two lectures, one recitation and two laboratory periods of three hours each per week. Only the two lecture periods each week were involved in TV. All sessions of the two psychology courses were televised (three times per week). In the chemistry and general psychology courses, control groups which did not receive TV instruction were utilized. The experimental group in both of these courses received instruction in one of two ways--either they viewed the lectures on a receiver, or they were in the TV originating room with TV cameras, equipment, etc.

The psychology of marriage course was set up so that comparisons could be made only between those receiving instruction via TV and those receiving instruction in the TV originating room. No control group was involved.

Three instructors were used in chemistry Each took over 1/3 of the TV lectures, appearing in rotation. The same three also taught to the control groups. Two instructors taught the course in general psychology. One taught a control class while the other taught to the experimental groups. Later in the day, the two instructors switched, one teaching to another set of experimental groups and the other to another set of control groups. There was only one instructor for the psychology of marriage course.

For the chemistry course, there were 240 students in the experimental groups and two control groups of 100 students each. The 240 experimentals were split into 120 subjects for TV viewing and 120 subjects for the TV originating room. Subjects were distributed in the experimental groups on the basis of first semester course grades and final examination grades in chemistry. Although the 120 originating room subjects received the lecture in one group, the TV students were split into four groups in different rooms each with one 24" receiver. A control group of approximately 150 students were given the lecture at a subsequent hour.

General psychology classes were standardized at 40 students each. The television originating room had 40 students. There were two receiving rooms each with 40 students. Control groups were 40 students and received the lecture in another building.

The psychology of marriage course was split into four groups, each with about 30 students. One group was in the television originating room with the other three groups in separate receiving rooms. Receiving rooms for both the psychology of marriage and general psychology had two 24" receivers per room.

For the chemistry and general psychology courses, measurement of learning was obtained through three one-hour objective tests spaced throughout the semester and a final two-hour examination. The psychology of marriage course had three one-hour objective tests during the semester. In addition, those who received instruction via television were given a reaction schedule designed to tap students' attitudes toward TV instruction. The general psychology students were given also rating sheets of psychology in relation to other courses, attitude scales to measure the personal relevance of psychology to themselves, the authoritarianism scale, and a questionnaire concerning the taking of a future course in psychology. The psychology of marriage students filled out a marriage happiness prediction inventory.

Findings: Findings on the objective information tests were:

1. General chemistry--there were no significant differences between mean scores of the control, TV receiving and TV originating room groups on any of the four tests.

2. General psychology--there were no significant differences between mean scores for the three types of groups on three of the tests. There was a significant difference on the second test favoring the regular lecture (control) group. The authors state that this difference may be due to factors beyond the scope of control in the experiment, and not to differences in the mode of presentation.

3. Psychology of marriage--there were no significant differences between mean scores on the three examinations. Comparison here was between TV originating and TV receiving groups.

In discussing these results, the authors state that (a) the tests used may not have been appropriate enough nor sensitive enough to pick up differences if they really existed, (b) factors not controlled in the experiment, such as amount of textbook reading, face-to-face discussion outside of class, and in the chemistry course, the amount of learning in the recitation and laboratory sessions, may have affected the outcome such that differences due to mode of presentation were obscured.

Results of other tests:

Student reaction schedules--In both the psychology courses, students estimated their probable learning and interest as compared to conventional instruction three times during the semester. Chemistry students executed the schedule two times. No definite trends were discovered. The majority of the students thought they were learning about the same or a little less (on a five-point scale) through television. In the final ratings, students in Psychology of Marriage gave the highest ratings and chemistry students the lowest.

Rating of psych with other courses--When students ranked psych with respect to other courses in terms of contribution to their own educational advancement and of liking psychology, a significant difference appeared between students who had received the standard lecture and the two TV groups. On both items, the standard lecture students rated psychology higher.

There were no significant differences or else results were inconclusive on the personal relevance of psychology scale, on signing up for a future psychology course, or on the marriage happiness prediction inventory.

A significant reduction in the F scores (less authoritarianism) was obtained based on administration of the F scale during the first week and again during the last week of class. There was no significant difference between TV and non-TV groups.

Authors provide some guideposts for TV instruction after their experiences. Modifications to usual classroom procedures were listed as:

1. Use of only one panel (5 feet wide) of blackboard at one time. Soft grade chalk to be used for television work.
2. Avoidance of pacing and slowing down of all movements.
3. Prior check of demonstrations for visual quality.
4. Use of two cameras, one to show small equipment and demonstrations using small items and one to televise instructor.

12--CCTV instruction. Lafayette, Ind.: Purdue University, 1956. (Four preliminary reports--duplicated)

These are four preliminary reports on closed-circuit telecasts done with regular college classes. Television was used only part of the semester in each course.

1. Seven lectures in a political science course, "Political Parties."

Fifty-one students enrolled in the course were split into two groups. One group of 15 students received the instruction direct from the instructor in the presence of a TV camera while the rest of the students viewed the lecture over a receiver. The only changes made in the instruction which departed from normal were the use of more visual aids (five to six times normal), the absence of questions from students, and more carefully worked out lectures.

Student reaction to the series:

90-95% of the students complained about the phone system (hand set talk-back to the instructor).

A majority stated they didn't get as much from the lectures as normally and did not take as many notes. They also claimed the lectures seemed somewhat stiff and formal.

A majority reported that the darkness of the classroom made it difficult to take notes.

Half of the students said that they didn't like the lectures as well as in-person instruction because of loss of intimacy.

The instructor reported "no discernible difference in student achievement" according to a test over the seven lectures used on TV.

2. Two weeks of CCTV of a mathematics course--Analytic Geometry. Twenty-six students viewed the instruction. The instructor was alone in the studio. There was opportunity for talk-back to the instructor in the form of a roving telephone set. The only visuals used were those of normal class procedure. There were no major changes in manner of presentation.

Student reaction to the series:

Students were not enthusiastic of the method.

Two-way communication was deemed not satisfactory.

Order in the classroom was not adequate. (No proctor was used)

Identical tests given one year apart on the same units of the course showed no significant difference in achievement between TV and conventional methods of instruction.

3. Four lecture demonstrations in general chemistry. Four sections of the course were given explanations and demonstrations on laboratory procedure by an instructor sitting alone in the studio. Each section was composed of about 60 students. Each demonstration-lab was on a different day. No major change in presentation was made.

Student reaction:

90% of the student comments were highly favorable.

Preliminary analysis of students' test scores on the TV unit of instruction showed no significant difference when compared with non-TV students in the same course.

4. Four laboratory demonstration in general bacteriology. Forty-eight students received laboratory procedure instructions over TV from an instructor sitting alone in the studio. Two graduate assistants were in the lab with the students. Facilities for talk-back were provided. No major changes in manner of presentation was made.

Student reaction to the series:

The majority felt they learned "a little more" or "much more" than a conventionally taught course.

The course was "much more" to "a little more" interesting.

Principal advantages cited by the students were: (a) closer viewing, (b) more variety in demonstrations, (c) able to learn "easier", (d) able to pay attention better, and (e) not as many distractions.

Principal disadvantages cited were: (a) viewing comfort of laboratory stool was poor, (b) glare of glassware (over TV) was bad, (c) impersonal feeling in the presentation, (d) picture and audio needs improvement, (e) "like a factory", (f) not enough board space and poor camera work on it, (g) too small a screen, and (h) other mechanical difficulties.

The majority did not feel as free to participate in class.

Little difference was noted in test scores when compared to a control group.

13--Evaluation of secondary school science lessons used by elementary school children "Class A" - WBAL-TV. Baltimore: Baltimore Public Schools, (no date) 1954? (duplicated).

Acting on the basis that children get a great deal from programs designed for adults, the Baltimore schools decided to see how much elementary students could learn from programs planned for in-school viewing of secondary students. A series of four programs was presented concerning Chesapeake Bay--its history and geology, and some of the marine life.

Twenty-four elementary grades from the fourth to the sixth viewed the programs. Evaluation was accomplished through the use of questionnaires filled out by teachers. Twenty-one teachers were invited to participate and of these 18 filled out questionnaires. Six other teachers on their own initiative sent in evaluations.

Only one of the teachers thought that the programs were too advanced for elementary children. This teacher said that hers was a slow class. Eleven thought the children were able to get something worthwhile from the program. Thirteen thought the programs were well within the grasp of the children and very worthwhile.

Under reasons for thinking the series had value, the most checks were made to the following:

a. It provided materials which would be difficult for the average teacher to procure.
b. It provided an enriching experience in science for the children.
c. Close-up shots made it possible for all the children at once to see experiments performed.
d. It gave me ideas for my own teaching.

Children's comments on the series were scattered over a wide range. Most talked of specific programs or specific items within one of the programs which they liked. Some of the more frequent comments:

a. I was interested in the fossils shown on the first program.
b. I liked the live crabs and real fish on the program.
c. It has helped us to increase our science vocabulary.
d. They made me think about the bay and made me get books for additional information.

14--Evaluation report of "Know Yourself Better." San Francisco: City College of San Francisco, (no date). 1954? (duplicated)

Analysis was done on a 15 week, one semester hour credit course in adult psychology given in the spring of 1953. 362 persons applied for and received registration books. 227 enrolled for credit and 164 completed course. Some idea of drop may be garnered from the following figures:

227 returned registration books and received 1st mid-term exam.
188 returned 1st mid-term exam and received 2nd mid-term exam.
171 returned 2nd mid-term exam and received final exam.
164 completed the course of which five received a grade of "F".

Average age of the registrants was 36. Of the 171 students who stuck with the course until the final examination, 131 were women and 40 were men. Eighty-five of these persons experienced their first college course, 22 had less than two years of college and 64 had more than two years.

A Pulse, Inc. analysis in March and April showed that there were approximately 25,000 sets turned to the program out of a total of 550,000 available and out of 130,000 sets actually in use at the time of the program. Pulse estimate of the number of viewers per set was two persons.

A questionnaire sent to persons who had applied for registration books was returned by 181 persons. Of this number 122 were enrolled in the course, 19 enrolled but were unable to complete the course, and 40 were non-credit viewers.

Respondents heard of the program most often either by an announcement (movie trailer) on the TV station or through accidental tuning to the program. Twice as many heard of the program in this fashion as the rest of the methods combined. Next highest medium of hearing of the program was word of mouth followed by notices sent by the college and newspapers or magazines.

An average of 13 programs were watched by the viewers. (Total number of programs is not given but the series was telecast from February to May.) The majority approved of the time (6-6:30 p.m.), the day of the week (Thursday), the length of the program (30 minutes), and the regularity of the program(once a week).

Some of the highlights of the other questions in the survey:

Did you take notes? Regularly 80 Occasionally 41 No 48

How would you judge this series with other comparable television programs?

Better than others 58 As good as 29 Not as good as 6

No basis for comparison 76

One effect this program has had on me is to Encourage further reading on my own 134 Prompt me to enroll in psychology classes 49 Discourage further study in psychology 2

Do you feel that your presence in the on-set class would have helped you?

Yes 56 No 70 Don't know 39

List three most important reasons for watching the series

Desire for self-improvement	128	Interest in psychology	60
Free college credit	74	Encourage good TV	25
Understand others	65	Education at home	17

List three things you like most about the program

The instructor	92	Visual aids--films	62
On-set class	70	Guests and panel	35
Presentation	64		

List three things you liked least about the program

Program too short	35	On-set class	19
Camera too quick	25	College announcements	12
Poor program time	19	Test and course differed	12
		Lack of contact	10

15--Evans, R. I. An examination of students' attitudes toward television as a medium of instruction in a psychology course. Journal of Applied Psychology, 1956, 40, 32-34

Method: The investigator sought to determine attitudes toward teaching by television after students had completed such a course. Seventy-four students enrolled in an evening section of an elementary psychology course were used. Classes were conducted via television twice weekly with two weekly discussion meetings held on the campus. Both TV and discussion sessions were 45 minutes long per meeting. Students were not told when registering that part of the instruction would be by television in order to retain enrollees who might have avoided taking the course had they known TV was involved. Prior to taking final examinations, students were instructed to answer two questions with one of three answers, yes, no, and undecided. The questions were, "Do you feel that you would enroll for another college course that used television as an instruction medium?" and "Do you feel that the on-campus discussion sessions with the instructor as an addition to the television lectures added anything appreciable to your learning in the course?" Space was provided to accommodate answers to the question "Why?" after each response as well as for general comments.

Findings: To the question about their willingness to enroll in another course utilizing television, 70% of the students responded Yes, 13% responded No, and 16% marked Undecided. In answer to the question "Why?" for those who answered Yes, the following comments were given: (1) that television is ideal for large lecture classes to maintain uninterrupted lecture continuity; (2) that the organization and quality of a television lecture is superior to a regular classroom lecture and (3) that although not all courses would be amenable to TV, they would enroll for those courses suited for TV lecturing such as large courses of the elementary type.

Answers to "Why?" for those who responded No or Undecided were: (1) that TV instruction allows no questions by students; (2) that various technical difficulties in transmission, reception and production interfere with learning; and (3) that interruptions from other viewers or other sources interfered with learning.

Responses to the second question of the value of on-campus discussion meetings were broken down to 42% Yes, 56% No, and 2% Undecided. In response to the why question, respondents who answered Yes said that on-campus meetings helped to clear up points and that personal contact with the instructor increased interest. For those who answered that on-campus discussion did not contribute to learning the reasons were that the TV lectures were complete enough in themselves and that the discussion group was too large to be effective.

16--Evans, R. T. Social psychology on television: Experimental programming. American Psychologist, (in press).

Article consists of comments and personal experiences dealing with a non-credit weekly half-hour psychology program presented over KUHT-TV in Houston.

On techniques of presentation, "role-playing" was used as an opening gambit. Without any identification of the program, a dramatic scene is played to highlight the social-psychological topic in lecture form to follow. Successive points were sometimes dramatized. At times, a telephone line was thrown open while the program was on the air. Author states that the role-playing idea seems to be an effective attention-getter as evinced from the number of telephone calls during the program.

With respect to the discussion of potentially controversial subjects on a television series, the author says that there has been no evidence of concern or resistance on the part of viewers to such subjects. Academic or scientific objectivity, the author writes, appears to be a valuable asset in presentations on television.

The value of such television presentations, even in the absence of evaluation, may lie, according to the author, in the series functioning to "clear the air." "It is altogether possible," he says, "that even sensitive attitudinal measures would reveal no immediate, dramatic, direct effects on the attitudes of viewers. However, the fact that such ideas are being openly presented on television and become part of the accepted prevailing social climate may be in itself significant."

17--Evans, R. T., Roney, H. B. & McAdams, W. J. An evaluation of the effectiveness of instruction and audience reaction to programming on an educational television station. Journal of Applied Psychology, 1955, 39, 277-279.

Method: Study was carried out to determine the effectiveness of TV instruction in two college level courses and to ascertain courses preferred by viewers to station KUHT-TV. Also investigated was the size of the KUHT-TV audience and reactions of this audience to programs telecast by the station. Two courses, an elementary psychology course and an elementary biology course were chosen for investigation. In the psych course, comparisons were made between 96 subjects in an on-campus lecture section, 17 subjects enrolled in a section for TV lecture only plus correspondence work, and 30 subjects enrolled in a TV plus campus-discussion section. In the biology course, two groups of 78 subjects matched for college class, grades and sex were used in TV and non-TV sections. To determine the audience of the station, 384 subjects were selected at random from the Houston telephone directory and interviewed. Comparisons between the various groups in the psychology course were accomplished through the use of a final examination of 150 items. The instructor was the same for all conditions. For the biology course, midsemester grades on a 70 item test were used in comparisons. In the interviews to determine audience size and reactions, telephone interviews were conducted.

Findings: There were no significant differences among test scores for the groups in the psychology sections. Similarly, there was no significant difference between the test scores for the TV and non-TV groups taking biology.

Results of the 384 interviews revealed that 75% of the respondents owning TV sets watched KUHT-TV at least once every two weeks. Of this number, 18% watched two programs a week or more. Fifty per cent of the viewers had no favorite program on KUHT. When respondents were asked to select from seven categories the type of programs they would like to see on KUHT-TV, 83% picked sports programs, 73% educational films, 68% children's programs, 50% individual lectures, 44% formal course offerings and 39% classical music.

18--Frank, J. H. An evaluation of closed circuit television for interceptor pilot training. Dissertation Abstracts, 1955, 15, 2060-2061.

Method: Object of the experiment was to find out whether televised weather information was retained better by pilot trainees than information given by audio alone. Identical weather information was transmitted to Air Force pilot students by audio and by TV. Limited available student samples required multiple tests per individual. (Size of sample not given).

Six sets of synthetic weather briefings, weather charts and tests were developed. After each transmission of briefings by audio or TV, tests were administered to students who were training in three types of trainers. Each test consisted of four multiple choice and one problem question. Opinions on the two methods of transmission were asked at the end of the experiment. Each group in the three types of trainers were subjected to two briefings and two tests.

Findings: There was no significant difference by analysis of variance between the first and second testings. There was no significant difference among students compared by the type of trainer.

Test forms were then pooled. A test between means on the combined multiple choice tests revealed a significant difference in favor of TV weather briefings. A chi square test of pooled problem test results also showed a significant difference in favor of TV. Opinions of the students were in favor of TV transmission over audio.

19--Fritz, M. F., Humphrey, J. E., Greenlee, J. A. & Madison, R. L. Survey of television utilization in army training. Port Washington, L.I., N.Y.: Special Devices Center, Human Engineering Report SpecDevCen 530-01-1, 31 December 1952.

Purpose of the survey was "to interpret previous findings and experience in terms of direct application to Army training problems, and to fill in, when necessary, gaps in the available information." Authors come to the conclusion that the Army initiate a television training program.

Mention is made in the report of observations of training through TV at Ft. Monmouth (Radio electronics), (Wire division), (Photo division), Ft. Slocum (Chaplain's school), and Aberdeen Proving Ground (Preventive Maintenance Course), as well as experience at WOI-TV. At Monmouth, the group conducted a study comparing TV and non-TV classes in the radio electronics course. The TV group were taught about half of the course via TV. Comparison was made between 61 TV students and 134 non-TV students. No significant differences were found between TV and non-TV students as measured by a 75 item multiple choice test. Further, dividing students into high and low aptitude and information score groups, no significant difference was found between TV and non-TV students paired according to high and low scores.

In the Wire division at Monmouth, spot telecasting was done. Classes were then asked about their reactions to TV instruction. In general, students were favorable to instruction by TV.

Authors conclude that a check-list of criteria for suitability of the subject matter for television be utilized. A 13 item check-list is presented in the report. Authors recommend that:

(1) a limit of twenty be imposed on number of students per receiver.

(2) instruction by television be limited to four hours a day with each session not to be more than 30 minutes.

(3) instruction be informal and extemporaneous.

(4) instruction by TV be instructor-dominated (i.e. the director follows the instructor in his presentation)

(5) a panel of three men be used in the studio if a partial substitute for class discussion is needed. Authors state that instructors, especially inexperienced instructors in TV, feel more at home talking to someone rather than to a camera alone An increase in the number of participants on the other hand, the authors say, gives the viewer a feeling of looking into a classroom situation rather than a feeling that the viewer is part of the class himself.

(6) for training aids, fine-lined schematics of letter size, 8½ x 11, be televised printed black on white instead of reverse typography.

(7) large charts be made in contrasting shades of gray; and if possible, gray on medium brown background.

(8) soft, white chalk be used on a blackboard and if available yellow chalk on a green board.

(9) a lapel microphone be used.

(10) a large studio monitor be provided so that instructor can observe his own teaching.

(11) a TV receiver with a screen 19 inches or larger be used but that large screen television projectors not be used.

(12) feedback or intercommunication facilities be provided only where deemed indispensable. The authors say that providing intercommunication often results in trite questions, questions covering material already known by all.

(13) diagrams and drawings be kept compact on a blackboard, that the amount of writing be somewhat restricted and the rate of writing quite deliberate.

(14) in selection of instructors for TV, first consideration be given to a thorough knowledge of the materials to be taught.

(15) first lessons taught by a new TV instructor be in the presence of a studio panel with the panel dropping out in subsequent programs if desired.

20--Gable, Martha A. In-school television. Philadelphia: Board of Public Education, School District of Philadelphia, March 15, 1956 (typewritten).

Author reports her conclusions to pertinent questions on in-school television culled from eight years of experience in the Philadelphia public school system.

1. Is classroom television more valuable or suitable for certain grade levels?

Good programs have proved to be of value at any grade level. However, it is simpler to adjust for time in the elementary grades than in the secondary schools. Secondary schools will make time to view telecasts if the quality and value of the programs are at a high level.

2. Are there subjects which can be presented and utilized more successfully than others by television?

The most widely accepted programs are those which offer something not otherwise available to the classroom. This may be in the form of specialists, demonstrations, dramatic presentations. There must be an expressed need for the services, however.

3. Who decides what subjects, for which grade levels, are to be offered?

All branches of the instructional staff concerned with curriculum and teaching mainly through conferences.

4. Who prepares the programs?

The instructional staff has the main responsibility working closely with the television staff.

5. How is a television staff selected?

The author prefers to put direction under a teacher (or teachers) who can then learn television techniques, rather than to select from TV station personnel.

6. To what extent should children appear on telecasts?

The author suggests that children should be used when necessary as an integral part of the program but that too many children should not be used. When an outstanding expert is on, often it is better to let the individual carry on alone.

7. What time segment is best for classroom use?

For primary grades, teacher preference is 15 minutes. Upper elementary and secondary teachers prefer 30 minutes. If time is flexible, 20 minutes is a popular length.

8. What types of viewing arrangements are most effective?

Most teachers prefer a 21" set in the classroom. Auditorium use is satisfactory but not desired.

9. How much time is required to prepare a school telecast?

A 15 minute program on art, reading usually requires 3 to 6 hours. A more complex presentation may take 8 to 20 hours for a 30 minute program. Average time is 6 hours per program.

21--Halpern, N. G. The Western Reserve University Telecourse Audience. Cleveland: Western Reserve University, 1953 (Duplicated)

Report of an audience survey of Cleveland residents with respect to Western Reserve University television credit courses.

Method: Two surveys conducted in May and June, 1953. One survey consisted of 303 telephone calls to a random sample of Cleveland residents. The second consisted of 71 intensive interviews of television credit course viewers.

Findings:

a. Approximately 6,000 adults viewed the telecourses each day. These represent 1.2% of families owning television sets; 20% of those who view at 9 a.m. (when the courses are given). This is twice the number expected to view the courses taking into account the fact that approximately 10% of the Cleveland population at home during the time of the telecasts have the necessary educational backgrounds.

b. Telecourse viewers are primarily females with an average of slightly more than a year of college education and with mates whose average education is 2½ years of college.

c. Compared with telecourse viewers who have stopped viewing, those who continue to view have more education, mates with more education, been away from classroom schooling for a shorter period of time, and have less learning distractions at home.

d. The following factors seem to have little influence in determining how steadily a person views telecourses: economic status, size of family, children at home, age and initial motivation.

e. Those who continue to view have: trained their children not to interfere during the telecourse period; instructed friends not to call during the telecourse period; refused to answer calls during class; and arranged their schedules to permit time for studying and viewing.

f. Viewers prefer courses that aid in every day living.

22--Hansen, C. F. *Extent of use of school telecasts in the District of Columbia schools*. Washington: Public Schools of the District of Columbia, 1954 (duplicated).

A report as of December, 1953 on the number of students watching elementary level in-school TV broadcasting. The series was a fifteen minute broadcast every morning. Schools and classes viewed on a voluntary basis. They were free not to view if the teacher deemed the time should be spent otherwise.

In December, 1952, there were 303 classes and approximately 11,000 pupils watching the series which were telecast every morning Tuesday through Friday with four different topics : science, music, French and Spanish. In December, 1953, there were 1,014 classes with 34,815 pupils watching the series consisting of the following programs--Freedom tours, Science in Everyday Life, Let's Speak French, Let's Speak Spanish, and Music Time. There were 118 elementary schools involved compared with 69 the year before.

The Freedom Tours series was used for evaluation purposes. Results of the questionnaires (total number not given) were as follows:

1. Does the program stimulate interest in American History?

None	---
Some	53
Much	64

2. Does the program impart useful historical information:

None	---
Some	24
Much	83

3. Does the program inspire loyalty to and love of country?

None	4
Some	49
Much	45

4. Does the program lead to additional study of American History?

None	2
Some	60
Much	31

5. Does the program stimulate parents and children to visit historic shrines?

None	1
Some	63
Much	37

6. Should the Freedom Tours series be continued next semester?

No 7
Yes 98

23--Hansen, C. F. *From boom to bust in TV teaching--in one year A report of developments in teaching by television in the District of Columbia public schools*. Washington: Public Schools of the District of Columbia, September, 1955.

Report summarizes possible reasons for failure of the in-school telecasting program in Washington. From a high of 1,014 classes and 34,815 students, the viewers of the program dropped to 392 classes and 12,833 students in one year.

Two of the programs the previous year had commercial sponsors who dropped out. The NBC outlet in Washington which made airtime available the previous year, stopped this policy. Author also states that each year, there were hundreds of spontaneous responses from listeners outside the classrooms. Only two letters were received in 1955.

Author states that despite the drop in viewers, the programs were better, more schools had TV sets, teachers had more experience before cameras, and the in-school series had a reputation of success from having won three awards. Also, for the first time, teachers were released from classroom assignments to teach on television.

In trying to analyze the reason for the series' failure, the author touches upon the difficulty of teachers in trying to incorporate a TV series into their teaching programs. He also believes that once the novelty of TV has worn off, then other qualities must bear the brunt of sustaining interest. He hints that perhaps teachers lack videc know-how, that viewers unconsciously compare TV teachers with professional TV people.

Author comes up with the following principles if the TV series is to be resuscitated:

1. Television in the classroom is justified only if it brings experiences, materials, and teaching skills which the regular teacher is not prepared to supply.

2. Rather than a teaching series for classroom teachers to follow, each program or series should be self-sustaining. The view that classroom TV is a teaching aid, as a movie or film strip selected to fit a teaching unit, should be discarded. TV teaching should become a learning experience valuable in its own right.

3. Presentation of lessons or the programs need expert handling. If teachers are to do the job, they must also become video specialists.

4. Teaching by TV on an in-curriculum basis may be useful to meet short-term needs and interests of pupils and teachers. The series, however, ought to have a terminal point and should not result in overworking an idea until interest disappears.

24--Hansen, C. F. *Teaching by TV in the Washington, D. C. public schools.* Washington: Public Schools of the District of Columbia, 1953 (duplicated)

Report is a summary of a survey of educators whose classes viewed the in-school broadcasting series during the fall semester of 1952. 303 teachers and some principals returned the evaluation forms. TV broadcasts were made every morning Tuesday through Friday. 303 classes in 69 schools tuned in on the lessons. The subjects were science, music, French, and Spanish, all broadcast to elementary grades. In all, 12,527 pupils saw the programs in their classrooms.

Questionnaire returns were as follows:

1. Do the lessons stimulate pupils to further worthwhile activity?

(Some respondents reporting on more than one lesson)

Yes 270 No 56

2. Do you want to continue using the TV lessons?

Yes 302 No 34

3. Does your class want to continue using the TV lessons?

Yes 286 No 41

The TV lessons stimulated a wide range of study activities. Teachers reported a variety of after-lesson activities ranging from undertaking of class projects to taking trips based on program topics.

Two basic questions were raised by the educators in the survey. One was the "obsolete" method of teaching of having children sit and listen to a teacher talk to them. The other was that TV made no provision for individual differences.

The author generalizes comments in the survey about improvement of TV teaching with the following statements:

1. Relate the lesson to the curriculum.
2. Prepare plans well in advance and distribute early so that teachers may prepare the classes for the telecast lesson.
3. Try for variety in presentation of the TV lessons.
4. Teach to the participating classrooms.

5. Let classes or groups select the programs they want to see.
6. Let only one class view the lesson at one time.
7. Select an hour for the TV lessons that does not interfere with an established recess schedule.
8. Organize to insure better classroom reception.
9. Add new TV programs.

25--Hard, C. G. & Watson, D. P. Testing scientific terminology on television. Science Education, 1955, 39, 140-141.

Method: In order to ascertain how much subject matter in science (horticulture) could be assimilated over TV, three different quantities of subject matter were presented to college freshmen who had had no previous exposure to the subject. One TV program in the series planned was shown on film to matched groups.

The program was divided into three segments--a 15 minute segment of 15 scientific terms, a 19 minute segment of 20 terms and a 24 minute segment of 25 scientific terms. Three different groups of viewers were exposed to each of the three segments. An immediate posttest was given on recall of terms given in the program. Then a "comprehensive" test was given which asked students to select terms which best fitted explanations or definitions.

Findings: Analysis of variance design was used. The results showed that increasing the number of terms from 15 terms in 15 minutes to 20 terms in 19, to 25 in 24 minutes did not alter significantly the percentage of terms recalled or comprehended. There was no significant change in the level of recall. The percentage change of recall between 15 and 25 terms groups were nearly equal. Between the 15 and 20 terms groups, there was a decrease but the results were not significant.

One way of putting the results is that the group which was given the highest number of terms learned more than either of the other groups. All groups also comprehended approximately the same percentage in attributing the terms to definitions.

26--Harris, D. B. Observations on a credit telecourse in child psychology. Minneapolis: Institute of Child Welfare, University of Minnesota (no date) (duplicated).

Twenty-six lectures of 30 minutes apiece, using demonstrations, were given over WMIN over a period of three months as a credit extension course. Author summarizes his personal reactions to the course and reports some of the results gained from a mail survey.

Credit-enrolled students were required to submit 16 written lessons plus a final examination. A syllabus was prepared and given to all credit students and sold to all non-credit applicants. There were 56 students signed up for credit. 830 more bought syllabi and were considered as auditors. Station estimates of the total viewing audience were from 20,000 to 25,000 viewers.

Author attempted to get evidence of the spread of course material by contacting local libraries to see if any upsurge in circulation of child psychology books and materials was evident. Several reported upturns. The Minneapolis main library reported an upturn in child psychology book circulation, an increase in telephone calls about such books, and commented on the existence of a number of small study discussion groups using child development material and following the TV lectures. Numerous group discussion and study groups were reported. Two institutions used the lectures as part of their in-service training programs.

Of the 56 registrants for credit, three were men and the rest women. Forty-three of these returned the questionnaire. 440 of the auditor group returned questionnaires. No breakdown by sex is given.

The high number of women viewers in the registrant group was attributed to time of broadcast (10 in the morning). The most typical credit student as garnered from the questionnaire, was a woman with three children, the most typical child being nine years old. The TV group was compared with a non-TV group of 50 persons who had taken the course through regular extension procedures. The author found that with respect to submitting lessons, the non-TV group had 42 out of 50 persons who submitted one or more lessons, the TV group had 39 out of 56. Twenty-three of the TV group had submitted five lessons or more at the time of the questionnaire.

Of the auditor group, 70% stated that they viewed almost every time and another 17% at least once a week. About 2% of the auditors answered that they were members of an organized discussion group viewing the lectures. The auditor group ages ranged from 25% under 30 years of age, 50% between 30 and 40, 17% between 40 and 50, to 8% above 50. The group had fewer children typically than the credit group, the median number of children being two. Broken down by education, the auditor group had 3% with less than an 8th grade education, 20% some high school and high school graduates, 39% some college, and 38% college graduates.

27--Harshbarger, H. C. & Becker, S. L. *Teaching by discussion on television.* Iowa City: Television Center, State University of Iowa (no date), 1955? (duplicated).

Method: An exploratory study to investigate the feasibility of enlarging a college course discussion group through the use of closed-circuit television was carried out with a political science course, Comparative Foreign Governments. The course was given twice a week, one and one-half hours per session. Eighty-two enrollees for the 3-hour credit course were split into three groups--a studio group of 14 and two TV groups of 34 students each. Each of the TV groups was proctored by a graduate student. There was another instructor who alternated between the two TV rooms to pick up points in the discussion which might be used for testing, to prepare suggestions for the main instructor and to appraise class performances.

Intercommunication was arranged by a microphone-speaker arrangement such that all three groups could hear comments of each other. Discussion procedure was for the student in the TV rooms to raise his hand when desiring to speak. The proctor pressed a button which lit a small light on the main instructor's desk. The instructor indicated when he was ready and the proctor announced the student's name and gave the microphone to the student.

Two cameras were used in the studio room to pick up whoever was speaking in the studio room as well as to get reaction shots when someone else was speaking from another group. No special training aids were devised for the course.

An attempt was made to gauge effectiveness based on the following five points: 1. Amount of student participation, 2. attitude of students toward the course, 3. stimulation of students, 4. amount of work required, and 5. grades. No control group was used. (A replication of this study utilizing a control group was carried out during 1956).

Findings: For criterion 1--amount of student participation--student behavior was observed on a sample of class days which covered approximately one-third of the semester. On an average day:

1. 37.5% of the students registered actually participated or indicated a desire to participate. This is a minimum figure, the authors say, since tabulators probably missed some people who raised their hands.

2. Broken down by groups, 33.33% of those in one TV group, 30.42% of those in the other TV group, and 65% of those in the studio group participated or desired to participate.

3. 32.1% actually participated orally. For the three groups the percentages who actually participated were: For one TV group, 28.22; for the other TV group, 25.30; and for the studio group, 57.90. Many students participated more than once.

4. The number of times that students raised their hands without being called was 36.23. Broken down into groups, this figure was distributed 5.75 to one TV group, 5.58 to the other TV group, and 24.90 for the studio group.

For criterion 2--attitude of students toward the course--a questionnaire to students showed the following results:

1. When those who had had other discussion method courses were asked how the TV course compared, 72.5% said as good or better, 25% said

it was not as good as most; none said it was much worse.

2. When asked how they would advise their friends if this course were offered again in a number of different ways, 41.6% said a section taught as this course was, 18.3% said a section taught in the regular manner, 7.0% said a straight lecture on television, 28.9% said a straight lecture in a regular classroom, and 4.2% said it made no difference.

On the third criterion on how well students felt they were stimulated as opposed to comparable lecture courses, 45.1% said they were stimulated to greater thought by this course. 32.4% felt comparable lecture courses stimulated them more. 22.5% thought they were about equal. 45.1% thought comparable lecture courses were better for learning facts, and 32.4% said they were about the same.

On the amount of work involved, 57.8% of the students said they felt it was necessary to do more preparation than for comparable lecture courses. 5.6% thought lecture courses took more preparation. 35.2% said it was about the same.

In the matter of grades, the instructors felt that students in this course did at least as well as students who were taught this course in the regular manner.

28--Heath, H. E. Jr. *Television programs of educators broadcast by commercial stations*. Ames, Iowa: Iowa State College, July 31, 1954 (duplicated).

Report of a mail questionnaire survey with 91 educational institutions responding out of 190. Author states, "No statistical tests... have been run on the data. The sample was not randomly drawn, but is an incomplete census survey."

In response to how faculty members are selected to perform on television, the most frequently mentioned factors were:

1. The subject matter handled by the teacher.
2. The teacher's personality.
3. The teacher's reputation as a good teacher.

Other factors mentioned frequently were the teacher's appearance, his experience in presenting radio talks and his interest in the use of visual aids.

Most frequently mentioned items in connection with whether a television teacher needed special training were:

1. Training in use of visual aids and television techniques.
2. Television experience.
3. Little or no training.
4. Courses in speech and acting.

5. Opportunity to rehearse and experiment, using closed circuits.
6. Orientation courses in TV methods.

On the question of compensation to teachers for teaching over TV, the following breakdown was obtained for 80 respondents answering:

1. No adjustments (in time or money).	42
2. Fewer hours of class work.	26
3. Additional pay.	10
4. Relieved of extra-curricular activities.	1
5. Choice of extra pay or less class work.	1

On the question of how educators select courses to be televised, the survey showed that about 70% of the time, decision as to courses was based on one of the following:

1. Faculty committee action.
2. Public relations department decision.
3. Audience research.
4. Desires of the commercial station.

The survey respondents reported 238 telecourses offered, both credit and non-credit. Subjects most frequently offered were literature, public speaking, art, music appreciation, health, Spanish, biology, mathematics, science, government, history and psychology.

The average cost of programs put on by the respondents was $80 per program. The range on non-credit courses was from no cost to $400 per program. The average cost per program broken down by types of schools were: state colleges and universities, $90; private colleges and universities, $123; religious colleges and universities, $17; and public school agencies, $47.

29--Helmick, R. E. Television in high schools. American School Board Journal, Dec. 1951, 123, 21-22.

A survey of educators in the Cincinnati television viewing area was done after they had seen four 30-minute programs telecast for in-school purposes. Number queried is not given but administrators and teachers from 14 schools viewed the telecasts.

92% of the respondents felt that there was a place for TV programs designed for in-school use. Most of them felt that the greatest value as a school supplement would be in programs dealing with current topics.

About 35% thought that business and foreign language subjects could be supplemented by TV. Only 18% thought that mathematics would benefit from in-school programming in that subject.

About 67% thought that certain school activities could be televised for public relation purposes. Athletics was mentioned most frequently. Half of the respondents thought that the schools should receive pay for releasing such activities. About 25% banned advertising as a means of paying cost of televising school events. About 33% thought that advertising was permissible but excluded beer and tobacco products sponsorship. 14% put no restrictions on the kind of advertising.

Most educators thought that television would come to be more widely used than radio in the schools but not as much as films. 84% favored weekly supplemental in-school broadcasts and nearly 50% thought that advertising should pay the costs for the programs. A majority said yes to the question of their willingness to help plan educational programs. This willingness decreased for the older teachers and teachers of mathematics, science, and foreign languages.

30--Hurst, P. M. Jr. Relative effectiveness of verbal introductions to kinescope recordings and training films. Port Washington, L.I., N.Y.: Special Devices Center, Technical Report--SpecDevCen 269-7-42, 6 May 1955.

Method: Experiment was a follow-up of the R. Jackson study, Learning from kinescopes and films, (q.v.) to retest whether announcing a film as a kinescope increased learning. The same kinescopes and films used in the Jackson study plus two additional kinescopes and two more films were used. Nine hundred thirty-one men, recruits at the Bainbridge Naval Training Center were used. This group was deemed by the author to be somewhat comparable to the Jackson group. Twelve groups (six pairs of groups matched as closely as possible on weeks of training and mean Navy General Classification Test scores) were used. For each of the six kinescopes or films, one of the pair of matched groups received introductory remarks which stated that the material they were to see was a kinescope while the other member of the pair received instructions that they were to see a training film. Each group was pretested using true-false tests taken from the Jackson study and multiple choice tests to cover the other films and kinescopes not shown in the original study. After exposure, each group received the same test as a posttest.

Findings: Analysis of covariance, to adjust for differences between groups Classification test and mental aptitude scores, was used on the data. Of the six comparisons made between groups seeing the material described as a kinescope and groups seeing the material described as a film, none were significant. Two of the materials were replicated since there was a difference in scores on one of them which was large enough to warrant further investigation. The other material was repeated since the results were so much as variance with the findings in the Jackson study. There was no significant difference between the two groups on one of the materials. On the other, there was a difference which reached the 5% level; however, this was in the opposite direction to the results in the first administration. Author states that motivation may have been a factor in this particular film since the subject matter was not particularly relevant to Navy training.

Author concludes that the reason for no significant difference between groups based on describing the material as a kinescope or film may be due to the fact that the novelty of kinescopes had worn out. When Jackson's study was conducted (1951) the novelty effect may have heightened learning when subjects were informed they were to view kinescopes. In the present study (1955), the novelty effect may no longer be a factor. Substantial learning, however, took place regardless of whether the materials were introduced as films or as kinescopes.

31--Husband, R. W. Television versus classroom for learning general psychology. American Psychologist, 1954, 9, 181-183.

Method: Comparisons between classes in four different reception conditions was done with a psychology class (psychology of adjustment) at Iowa State College. The four conditions were: (1) TV at home--all lessons were viewed over TV at home with students required to come to the campus for examinations; (2) Studio class--10 students at a time sat in on the TV presentation while the remainder viewed the lessons on a monitor; (3) Kinescope class--campus students who viewed films of the course (in a later quarter) but who also engaged in 20 minutes of informal discussion afterwards; and (4) two campus classes--taught in the normal classroom manner. The instructor was the same for all groups. Each TV session was 30 minutes, the normal classroom sessions were 50 minutes. The same number of sessions were presented to each. The number of students in the TV at home condition is given but the number for the rest of the groups is not given. The TV at home group was the only one in which the students were not regularly enrolled students at Iowa State College. The age of this group ranged from 18-65 with the median age being 37. High school graduation for this group was a median 20 years ago. Thirty-one had no previous college credits, 12 had some credits, 11 had one year or more of college and three had two or more.

Findings: Using grade point averages for the course, the author found that the TV at home group did better than the TV in studio and the two normal campus groups. The kinescope group did the best of all. No test of significance is mentioned, however, and since the numbers in each group are not given except for the TV at home, there is no way of knowing whether these differences are significant or not. Author surmises that the kinescope group did better because of seeing the film plus using discussion. The TV in studio group did poorer, author conjectures, because of distractions in the studio situation. It might be noted that for this group, rotation of people 10 at a time into the studio with the rest viewing over a monitor was done so that there were no students who received TV-in-studio instruction for the whole series.

Spot surveys, the author states, showed that the audience was at least 60,000. As evidence of interest among the general populace, author says that over 1,000 letters were received and that in a discussion of vocational selection with the Strong Vocational Interest test, requests for 500 orders of the test were received afterwards.

Of the TV at home group, 54 out of 56 persons enrolled finished the course by passing all tests. Of these 54, 50 were women and 4 were men. (Classes were telecast in mid-afternoon) This group had no failures and had twice as many A's pro rata as the campus students.

2--Ignatius Marie, *Sister*. An experiment in classroom television assemblies. *Catholic Educator* (in press).

An in-school viewing program, divided into three series, was carried out by the Catholic schools of the Diocese of Columbus (Ohio). The three series were: health and safety, language arts in the use of the telephone, and social studies. Each of the series had four different programs, one for first and second grades, one for third and fourth grades, a third for fifth and sixth grades, and one for seventh, eighth and ninth grades.

Evaluation of the programs was accomplished by questionnaires executed by teachers who used the programs. Returns ranged from 42 for one program to 86 for another. For the first series, returns ranged from 42-59, for the second series from 60-86. For the third series, an evaluation conference of selected teachers was held instead of using questionnaires.

The responses were overwhelmingly in favor of the in-school programs. Responses were to such points as: arousal of interest, stimulation to lower grades of having higher grades participate, enjoyment of singing the theme of the program, stimulation of outside guests arousal of interest through participation elements in the programs, the effectiveness of inserted film segments, the effect of the programs on after-program activities. In no case was the percentage favoring the programs lower than 78%. Most of the responses to the questions were 90% or better in support of the programs.

3--Jackson, R. *Learning from kinescopes and films*. Port Washington, L.I., N.Y.: Special Devices Center, Technical Report SDC-20-TV-1 (No date).

Method: The experiment was designed to find out whether kinescopes would induce superior learning simply because of knowledge on part of the subjects that they were recordings of television broadcasts. Four pairs of matched groups were arranged such that the first pair were in a situation where one of the pair saw a kinescope described to them as a kinescope. The other group saw the same kinescope which was described to them as a standard training film. In the second pair, one group saw a standard training film which was described as a kinescope. The other group saw the same standard training film which was described as a standard film. In the third pair, one group saw a standard training film which was described as a kinescope. The other group saw the same standard film in color which was described as a standard film. In the fourth pair, one group saw a standard training film which was described as a kinescope. The other group saw the same standard training film in color which was described as a kinescope. Subjects were 240 airmen at an Air Force Base in New York. Each group had thirty men who were matched on the basis of age, rank, classification scores and years of schooling. A 100 item true-false examination was administered before and after exposure to the various film conditions.

Findings: For the first pair where both groups viewed the same kinescope, the group which was told that the kinescope was a kinescope did significantly better than did the group which was told they were looking at a standard film. In the second pair where both groups viewed the same standard training film, the group which was told that they were viewing a kinescope did significantly better than the group which was told they were looking at a standard film. In the third pair, where both groups viewed the same standard training film with one version in color, the group which was told that they were looking at a kinescope did significantly better than the group which looked at the same film in color and was told they were looking at a standard training film. In the fourth pair, where both groups viewed the same standard training film with one version in color, there was no significant difference between the group looking at the version in color and the group looking at the version in black and white when both were told that they were viewing kinescopes.

Author concludes that: "When a kinescope or a standard training film is described as a kinescope, learning increases significantly. The superior learning resulting from describing the film as a kinescope occurs whether or not the presentation is in color."

(See Hurst, P. M. Jr. *Relative effectiveness of verbal introductions to kinescope recordings and training films*. Port Washington, L.I., N.Y.: Special Devices Center, Technical Report--SpecDevCen 269-7-42, 6 May 1955 for follow-up study.)

34--Jackson, R. *Visual principles for training by television*. Port Washington, L.I., N.Y.: Special Devices Center, Human Engineering Report SDC 20-TV-2, (no date).

Method: 105 various training devices were shown on television and rated for visibility. Other factors were held constant by the use of the same TV equipment, same technicians, the same instructor and the same viewers. Each device was rated on 14 five-point scales. There were 12 raters who met 21 times rating five devices at a time. Devices rated in the top 25% were then compared with the lowest 25%. By this comparison, visual characteristics were determined. Then checks were administered by taking the three worst devices and revising them according to the principles uncovered by the comparisons. A rerating was then accomplished. Also, a new training device was made embodying nearly all of the principles. This was rated for visibility. As a final check, predicted rating on these principles were made for devices about to be rated and then the predicted and actual ratings were correlated.

Findings: The checks of the visual principles uncovered yielded the following results: (1) A test of significance accomplished between ratings on the three worst devices and ratings on these devices after revision according to the visual principles were significant beyond the .01

level. (2) The rating of a new device made according to these principles was rated as excellent. (3) Correlation between predicted ratings based on the principles for devices about to be rated and actual ratings was .90.

Author lists 31 principles uncovered in the experiment as follows:

1. Organization
    - a. The figure (principal part) should be organized in a horizontal movement from left to right.
    - b. Three horizontal planes of organization give best visibility.
    - c. Radial-type organization is effective. Circular or oval organization, however, should be avoided.
    - d. Vertical organization should be avoided.
    - e. Simple organization is best.
    - f. Moving parts of a device should operate slowly.
2. Figure to ground
    - a. A light figure on a dark background is best.
    - b. The figure should extend approximately over two-thirds of the background.
    - c. The device should have a border or surrounding area of approximately one-third of the total area.
3. Contrast
    - a. Dull light grey tones against dull dark greys give best contrast.
    - b. Where several contrasts are needed, it is best to work from dark to light, to dark to light, etc.
    - c. Avoid either too great or too little contrast in gray shades.
4. Materials
    - a. Avoid glazed or reflecting surfaces.
    - b. Avoid translucent materials.
    - c. Rough surfaced wood and paper give the best visibility.
    - d. Transparent glass or plastic gives an illusion of transparency.
    - e. Dull or tarnished brass gives an illusion of metal.
5. Size
    - a. Very large or very small devices can be used equally well.
    - b. Height-to-width ratios should be from 3x4 to 4x4.
    - c. Detail must be proportional to total size of device.
    - d. Small devices should be designed so hand will not conceal them.

6. Size of detail

    a. The height of letters and numbers should be approximately height-of-device/15.
    b. The width of letters and numbers should be approximately width-of-device/25.
    c. Stroke width of letters and numbers should be approximately width-of-device/100.
    d. Letters and numbers should be separated by approximately one stroke width.
    e. The above four rules should be applied to other detail as far as possible.
    f. Letters, numbers and important detail should always be light against a dark background.

7. Depth

    a. Three dimensional objects should be surrounded by as much air as possible.
    b. Charts should be substituted for cutaways.

8. Color (Study found that color added nothing to grey-scale rendition on TV. Author suggests that unless color is needed for other reasons, devices be prepared in appropriate shades of grey.)

    a. Light yellow against dark red or dark blue gives good contrast.
    b. Light yellow surrounded by air is excellent for three dimensional devices.

35--Jorgensen, E. S. The relative effectiveness of three methods of television newscasting. Dissertation Abstracts, 1956, 16, 814.

Method: Experiment sought to determine the relative effectiveness of three methods of TV news presentation--newscaster alone, newscaster using still pictures, and newscaster using motion pictures. Criteria for determining effectiveness were the gaining of information and the approval of the programs by the audience.

Three 15-minute programs were kinescoped by three experienced newscasters. Each of the programs had 12 news stories arranged into three blocks. All three experimental presentations were used in any one film. The order of the three blocks of news stories was rotated for the three films.

Nine audiences composed of 142 people were selected. Three of them were college students, three were young adults who were community center members, and three were Air Force enlisted men. Each of the groups saw one of the kinescopes.

Pre- and posttests of information were given. Audience approval of the programs was secured through the use of a program analyzer. Data was arranged in a Greco-Latin square design replicated three times and analyzed by analysis of variance.

Findings: On the tests of information:

1. All three presentation techniques resulted in information gain but they did not differ significantly from each other.

2. Information in the final one-third of the program was learned best, middle next best, and initial one-third least regardless of the order of news techniques used.

3. The three groups of subjects differed in the amount of information gained. This the author attributes possibly to a difference in motivation.

4. A low correlation was found between information gain and education. There was no correlation between information gain and either age or sex.

On audience approval:

1. Newscaster-alone technique received the highest, newscaster with still pictures next, and newscaster with films decidedly lowest in approval.

2. The three kinescopes differed significantly from each other in approval pointing to differences among the newscasters used.

3. The three groups of subjects did not differ significantly from each other in their approval patterns.

4. Ordinal position of the newscasting techniques had no influence on approval.

5. Education, age, and sex were not factors in influencing approval.

On information gain and audience approval:

1. Information gain and approval were not significantly correlated.

2. Approval of segments of the program showed a low correlation with expressions of interest in the program as rated on a graphic rating scale.

36--Kanner, J. H., Runyon, R. P. & Desiderato, O. Television in Army training: Evaluation of television in Army basic training. Washington, D. C.: Human Resources Research Office, The George Washington University, Technical Report 14, November, 1954.

Method: Research using Army basic trainees at Camp Gordon, Ga. was carried out to answer the following questions:

1. Differences between television and regular instruction for basic training courses.

2. Differences between kinescope recordings and regular instruction.

3. Differences in retention between television and regular instruction.

4. Differences between high and low aptitude basic trainees on learning and retention through television and regular instruction.

5. The effects of a kinescope review on retention compared with effects of no further training on retention for high and low aptitude trainees.

In addition, trainee reactions to television were obtained. Descriptive information was gathered also on qualifications and training of instructors for television, on techniques for producing television courses, and on procedures for adapting training methods to television requirements.

Fourteen hours selected from the first 8 weeks of basic training were used. Subjects selected were: Functioning of the M1 rifle; Signal Communications; Military Justice; Mines and Booby Traps; Map Reading (7 hours); Squad Tactics; Defense Against Air and Armor; and Disassembly of the Light Machine Gun.

Two experienced instructors, rated superior by the camp instructional committee, were chosen for each of the 14 hours. Each instructor taught both television and regular instruction hours. For 11 of the 14 hours, one instructor taught in the regular style while the other taught the television class. The instructors reversed their roles when the same subject was taught to another group. For the remaining three hours, the same instructor taught both the regular instruction and television classes simultaneously.

Two basic training companies were used for comparisons between regular instruction and television instruction. Each company contained about 200 trainees. Each of the companies were split into two groups matched for Area I scores on the Army classification test. Several other basic training companies, similarly split into two matched groups, were used for the kinescope vs. regular instruction experiments.

Seventeen tests were constructed for the 14 hours, including written tests consisting of multiple-choice, fill-in, and picture identification items and performance tests. A posttest only design was used for all of the comparisons. To obtain a baseline performance, all of the tests except the performance test for Light Machine Gun disassembly were given to another basic training company which resembled the test companies. This company had not received any of the 14 hours of instruction when tested.

Findings: For immediate posttest, comparisons between regular instruction and television instruction showed:

1. There were no significant differences between the mean scores of both groups on 12 of the 17 tests.

2. In five of the 17 tests, there was a significant difference in mean scores of the two groups. In each case, television scores were superior.

3. Splitting both groups into high and low aptitude sub-groups, comparisons within sub-groups showed:

   a. No differences could be found between television and regular instruction on high-aptitude groups. A possible explanation by the authors is that since high-aptitude people scored near the ceiling of the tests, there was little room for differences.

   b. Among low aptitude groups, seven of the 17 tests showed no significant differences in comparison of mean scores. For 10 of the 17 tests, significant differences appeared. In each instance, television was superior to regular instruction.

For retention testing, administered about a month after the instruction, results were:

1. There was a decrement in amount retained for both the television and regular instruction groups except for two tests--M1 functioning and military justice--where both groups scored higher than their immediate posttest scores. Authors explain this by saying that the M1 rifle is a constant companion of the basic trainee and thus learning goes on after the end of formal instruction. Similarly, the mere presence in a military environment is enough to account for learning in a subject such as military justice.

2. In 10 of the 14 retention tests, there were no significant differences between mean scores of the television and regular instruction groups. Tests on the light machine gun and one hour of the map reading series were not given.

3. In four of the 14 tests, there were significant differences in comparisons of mean scores. In each case, television was superior.

4. Splitting both groups into high and low aptitude groups, it was found that:

a. In 10 of 14 tests, there were no significant differences between mean scores of low aptitude men.

b. In four of the 14 tests, there were significant differences among low aptitude men. In each case, television was superior.

c. No tests were run on the scores of high aptitude men.

In comparisons between kinescope recording and regular instruction, it was found that (kinescopes were used for only seven of the 14 hours):

1. There were no significant differences between regular instruction and kinescope groups for six of the seven tests.

2. There was a significant difference between the two groups on one of the seven tests. The kinescope group was superior in this comparison.

In five of the tests, part of the trainees who had received regular instruction, television instruction or kinescope instruction were given a kinescope refresher before taking retention tests. Results showed that:

1. Performances in all five tests were significantly higher than scores made on immediate posttests.

2. Those who did not take a kinescope refresher showed a decrement in amount learned, except for the military justice test (discussed above).

3. Low aptitude men showed significantly higher scores over their immediate posttests after kinescope refresher training.

4. Gains after refresher training were such that low aptitude men scored almost as high as high aptitude men scored on their immediate posttests.

With respect to the novelty of motivation effects of television training, authors state that the evidence points against a novelty effect operating. Efforts were made to reduce additional motivation to TV students by telling all trainees that they were engaged in an important study. The experimenters went so far as to give distinctive insignia to all involved. Although novelty effects were not tested, a look at test scores after TV instruction revealed that the largest differences favoring TV were for three instructional hours which came after five, eight, and 13 exposures to TV instruction. Authors state that perhaps television effectiveness is related to subject-matter content.

Items in the tests were categorized by the type of information being measured and the presentation methods employed to impart the information. The six categories which they devised were: (a) imparting simple items of information, (b) teaching nomenclature of pieces of equipment, (c) teaching interrelationships among parts of equipment, (d) teaching paired-associate learning, (e) giving recognition training, and (f) teaching manipulation of small pieces of equipment. By tabulating the number of items showing significant superiority for either regular or television instruction within each of the six categories, the authors found that for the last four categories, there was a significant difference in the number of items favoring television.

37--Kelly, G. A. & Conrad, L. H. Report on classroom television 1954. Montclair, N. J.: New Jersey State Teachers College, 1954 (duplicated).

Report covers a five month period during which, with the support of the Fund for the Advancement of Education, Montclair State Teachers College conducted several studies on the use of television in teaching. Three main studies are reported.

1. "The Baseline Study". The question asked in this study was whether or not "good" teachers were distinguishable from "poor" teachers when they appeared on television. The choice of "good" teachers was made as the result of nominations by supervisory personnel in various nearby school systems. A panel of six teachers, four women and two men, all 5th grade teachers, was finally selected. All but one had no previous television experience. These six were taken to a TV studio and told to teach in front of the camera. About two hours previous warning was given to them. The intent of this method was to get a "baseline performance" from each teacher. Authors state that all turned in "highly plausible" performances. In order to find out whether, by chance, they had run into a highly talented group of potential television performers, the researchers selected nine more teachers from the recommended "good" teacher list and put them through the same procedure. The authors state that again the "same poised performance" was recorded in every case.

The researchers then got together a group of 25 additional teachers, teaching ability unknown, to go through the impromptu performances. In this group, performances varied. The researchers then secured ratings on this group as to teaching ability. The authors conclude that "The television situation, though not necessarily the camera, elicits an observable differential between the behavior of outstanding and non-outstanding teachers." In other words, what the authors suggest is that the criterion of selection of teachers for television teaching might be boiled down to the question of whether the teacher is rated outstanding in live classroom situations without regard to such things as photogenic qualities, voice, etc.

2. The "Gross Feasibility" study. This section of the project was concerned with actual production and telecasting of a series of programs utilizing the six "good" teachers selected by methods in the "Baseline" study. The question asked was whether or not teachers who were selected because of their superior performance in the classroom could successfully teach on television. These six teachers plus others prepared a unit of the

fifth grade curriculum. The particular topic chosen was the pioneer period in American history. The course was to consist of a two week daily series, intended to be a complete teaching unit rather than a supplementary enrichment series. The final product was nine programs of one-half hour each kinescoped. Three of the six teachers taught two lessons each, the others teaching a lesson apiece. Thirty-six hours of on-camera studio rehearsal was necessary. The estimated cost for the nine half-hour series was $18,600 to $24,000 for a commercial equivalent. In addition, a teacher's guide was prepared for use by classroom teachers.

The series was telecast to 13 fifth grade classrooms in and around Asbury Park from where the series was broadcast by UHF. Evaluation of the series was based on (1) experiences of the production and studio staffs connected with the series, (2) judgments of the teachers who prepared the series, (3) daily reports of classroom teachers who received the broadcasts, (4) informal letters and reports from pupils, (5) reports of visitors to classrooms, (6) reports of pupils (turned in at the end of the series), and (7) group discussions between classroom and television teachers at the end of the series.

The authors conclude as a result of analyzing the evaluation reports from the sources listed above that:

a. Outstanding classroom teachers are feasible as talent for television programs prepared for classroom use. They qualify this conclusion with the following conditions:

   (1) That the teachers be "genuinely outstanding" in their own face-to-face classroom work.
   (2) That the teachers be "not too remote" from their own classroom and pupils. Rapport cannot be established, the authors say, by good teachers who have not taught for any length of time to the particular grade to which the programs are beamed.
   (3) That TV teachers should recognize the cooperative role of the teachers in the classrooms.
   (4) That "outstanding" teachers vary in effectiveness.
   (5) That production should be fashioned around the teacher's talents and not the teacher adapting to production.

b. Classroom utilization is just as important as studio production. The authors support this conclusion by the following points:

   (1) When pupils are asked to select topics about which they have learned the most, the local classroom development of these topics has as much to do with their selections as has the television presentation.
   (2) When pupils are asked to select topics about which they had the most interest, again, local classroom instruction seems to be an important factor.

c. Other conclusions made by the authors:

   (1) Demonstration of practical use and the showing of live children seemed to be the general factors which tended to account for choices of interesting items.
   (2) The basic ideas pupils select from televised lessons seem to be not affected by individual classroom teachers.
   (3) The idea a pupil selects as important is not necessarily the one which is developed by his favorite TV teacher.
   (4) The particular convictions pupils select after seeing televised lessons seem to be not affected by individual classroom teachers.

3. The "Intercommunication" study. Several studio techniques for "stimulating or simulating" intercommunication in a television teaching situation were tried out. The authors list the following methods:

a. Mind reading. Evidently a method by which a teacher anticipates the kinds of questions and answers pupils may raise.
b. Intercession. A method in which an interviewer is used to take the place of the pupils.
c. Panel of peers. The presence of a group of pupils in the program.
d. Real people. An effect, the authors state, which comes of realizing that the persons on the screen in a teaching situation are real as opposed to "fictional" persons on regular television programs.
e. Emergent personality. The regular appearance of a teacher to establish familiarity so that a feeling of intercommunication can arise.
f. Disembodied voice. The use of an off-camera voice to ask questions.
g. Heckling. The establishment of rapport with the teacher by having a heckler either on or off-camera goading the teacher.
h. Roving eye. The swinging of cameras to simulate a visitor visiting the teacher's room.
i. Teacher's lap. Close-up shots.
j. Interlude. Breaking the program up so that viewers have a chance to raise questions with their own classroom teacher before continuing with television instruction.
k. Hog fattening. Instilling a competitive spirit having interludes of classroom work after viewing a group of peers perform on the screen.

Twenty-eight productions were used out of 34 produced to try the above techniques. Tenth grade, fourth grade classes and a workshop group of graduate students viewed various programs. Authors conclude that:

a. "Mind reading" works well when well used with younger pupils.
b. "Intercession" or the use of an interviewer is the least effective of the methods to secure a sense of intercommunication.
c. Panel of peers is a good technique if the panel is spontaneous and not rehearsed.
d. The use of intimate close-ups, "teacher's lap," is an effective device.
e. The use of interludes in teaching is a potentially lucrative technique and should be explored further.
f. The "hog fattening" technique is effective when there are "open-ended presentations--presentations in which questions are raised and only partly answered, where controversial viewpoints are expressed, and where, if possible, there is a great deal of the kind of activity in the studio which can be duplicated in the classroom."

38--Lewis, P. TV takes a test. Educational Screen, 1950, 29, 196-198, 203.

Method: A six week experiment was performed at South Shore high school in Chicago to determine such things as size of screen to use for group viewing, maximum and minimum distances from the screen for clear images, heighth of TV receivers, lighting, and maximum angle of vision allowable.

Forty-eight chairs were numbered and arranged in a plotted and measured pattern. The spacing was that of an ordinary elementary classroom--six rows of eight chairs each. Four sizes of screens were used, 10", 12", and 16" direct view, and a 15 x 20" projection type receiver. Receivers were successively placed in the center front position in the room. Heighths of receivers started at 30" and were raised in 5" steps.

Groups who viewed filled out questionnaires as well as reporting on various viewing positions. 600 students were checked during one of the tests and another 700 were used in other measurements.

To get maximum and minimum viewing ranges, a tape was laid from the TV to the rear of the room. Subjects started at the rear and progressed toward the TV until a clearly discernible image was seen. Then they continued until they were at a position just before the picture began to lose resolution. For viewing angles--a pattern of radiating spokes was laid out, each spoke 10 degrees apart. Lighting was manipulated from total darkness through artificial light to natural daylight.

Findings: For heighth of TV set for classroom viewing, the conventional console height of 30" or a table model on a regular table is entirely unsatisfactory. The center of the TV screen should be between four and one-half to six feet above the floor. Staggered rows of chairs are more satisfactory than the regular classroom arrangement and conserves floor space.

Median maximum and minimum distances for viewing are:

Screen	Median minimum	Median maximum
10"	4' 6"	15' 3"
12"	6' 8"	17' 5"
16"	11' 8"	23' 2"
15x20"	14' 9"	34'

Given a typical classroom 23 feet wide, as an example, then the number of students that can be accommodated is:

Screen	Median No. of Seats	Maximum No. of Seats	Maximum length of classroom
10"	15	20	18'
12"	24	55	27'
16"	30	75	37'
15x20"	48	110	45'

Viewing comfort and clarity were best under conditions of some daylight or artificial light.

39--Lynch, J. E. A study of the size and composition of the viewing audience of an educational television program in the Detroit metropolitan area. Dissertation Abstracts, 1955, 15, 644-45.

Investigation was made into the size, viewing behavior, and composition of the viewing audience for the University of Michigan Television Hour. Interviews were held with 764 respondents, held to be a representative sample of metropolitan Detroit where the majority of the viewers of the program resided.

One-half of the TV set owners in the Detroit area viewed Television Hour. Two-thirds reported seeing the program within the last six months and one-fourth said that they viewed one to four times a month. Author says that this estimate shows that the viewing audience for the program may be larger than that reported by commercial research agencies.

With respect to composition of the audience:

1. Relatively large proportions of TV set owners in all age groups up to 60 years view the program.

2. A considerable number of high school and grade school background people view the program although college educated persons were found to be most likely to view.

3. Viewing is relatively high at all income levels.

4. Those who work as "professionals, managers, or proprietors," and "craftsmen, foremen, and kindred workers" were most likely to view but in no occupation group was the level of viewing below 40%. Author states that these and other findings suggest that viewers of the University of Michigan Television Hour are not a "cultural minority" but tend to be a group evenly distributed among all segments of the population.

When enrollees (surveyed by the University of Michigan) were compared with respondents in this sample who viewed, there was no significant difference between the two groups in sex or age, but enrollees tended to be more highly educated and were in higher status occupations.

A correlation was found between "civic orientation" and viewing of the program. Civic orientation was indexed by voting, club membership, knowledge of functions and aims of government agencies, and "political self-confidence." The data suggested a relationship between recall of a Television Hour program and viewers preference for that program.

40--Make a dress--TV! Ames: Agricultural Extension Service, Iowa State College, (no date) 1951? (duplicated)

Method: A twice weekly series of half-hour programs on clothing construction (making a cotton dress) was telecast over WOI-TV in February, 1951. Nine of these programs were filmed and one was live.

In order to obtain a prior indication of interest, enrollments were encouraged through advance publicity. Actually, enrollment meant sending in name, address, and certain other information such as rural or town residence, degree of sewing skill, etc.

Based on the enrollments a stratified random sample of 420 respondents was drawn for personal interviews. The sample was further classified into four groups: 1. TV instruction only, 2. TV instruction plus personal encouragement from the county home economist, 3. TV instruction plus supplementary booklet, and 4. TV plus booklet plus encouragement from the county home economist. Encouragement by the home economist was the placing of telephone calls at certain specified intervals to homemakers in groups of two and four, the mailing of prepared program-reminder cards to women of these groups, and general counseling of women who asked for help.

Findings: (A more complete summary of findings is available, according to the article, in two unpublished theses at Iowa State College, which were not completed at the time of the study.)

There were 3004 voluntary enrollment for the series. Of this number, 1308 lived on the farm and 1696 lived in town. 24% had sewed a little, 40% some, and 22% a lot according to their descriptions. 14% did not indicate sewing experience.

364 completed questionnaires were returned out of 420 in the sample. The following audience characteristics were noted:

68% were 25-45 years old
32% were 45-65 and older

Children: 23.1% had no children
Of those who had children:
19% had children under five years of age
18% had children from six to 11
18% had children from 12 to 17
45% had children in two or three of the above age groups

Education:
6% had attended grades 1 through 8
61% had attended high school
33% had attended college

Degree of interest:

90% of the women planned their time so they could follow each show.

57% saw all nine of the teaching programs. The highest percentage viewing any one show was 80%.

70% of the women said they were not interrupted during the shows.

36% of the women were interested enough to make a dress as a learning process.

36% of the women completed a dress during the series.

Evaluation of helpfulness:
58% said the series was very helpful
37% said it was helpful
5% said it was not particularly helpful or not helpful at all.

Of those who said the series was very helpful, 88% had seen from five to 10 of the shows. Of the women who said the series was helpful, 77% had seen from five to 10 of the shows.

Teaching methods:

It appeared that there was little appreciable difference between the four teaching methods tested. (TV only; TV and home economist; TV plus bulletin; TV, bulletin, and home economist). Of the women who received the bulletin, however, 57% said they studied it carefully, 19% said they looked at the illustrations and print.

--Merrill, I. R. U.S. TV credit course enrollment Fall semester, 1954-1955. East Lansing, Mich.: Michigan State University, WKAR-TV Research Report, 556M, (No date) (duplicated)

Report of a census-survey of 18 institutions of higher learning which offered TV credit courses during the fall semester. Twenty-two courses were offered, all of them in the arts and sciences. The total national TV credit course enrollment was 4016 with 620 on a credit and 3396 on a non-credit basis. An estimated 372,000 more viewers per week tuned in to the courses.

The average TV credit course had a combined comparative enrollment of 41.89 per 100,000 TV homes of which 6.68 were credit and 35.21 were non-credit. By subject matter, the social sciences attracted the highest combined comparative enrollment of 59.68 and the biological sciences attracted the lowest enrollment per 100,000 TV homes of 12.90.

Population density was only slightly related to comparative enrollment. There seemed to be no effect upon comparative enrollment of whether the course was broadcast over a commercial or educational TV station.

Method of instruction accounted for the most decided difference in comparative credit enrollment. The eight courses conducted according to on-campus procedure with TV viewing replacing class attendance had a mean credit enrollment of 13.99 per 100,000 TV homes, whereas the 13 courses conducted according to correspondence course procedure had a mean credit enrollment of 2.06 per 100,000 TV homes.

The four TV credit courses offered during the survey period which had the highest actual credit enrollment were: Psychology and Human Behavior, University of Southern California--256 credit and 856 non-credit, Let's Talk Children, Wisconsin State College--122 credit and 283 non-credit, Governments and Human Nature, University of Chicago--69 credit and 326 non-credit, and Ancient Times to Renaissance, Iowa State Teachers College--63 credit.

42--Mullin, D. W. *Retention as a function of motivation and environment in educational television on the secondary school level.* Ann Arbor: University of Michigan, (no date). (Abstract supplied by Mr. Mullin, Tulane University)

Method: The purpose of this study was to determine relative measures of retention as a function of motivation and environment in educational television viewing on the secondary school level. The importance of the retention measure is based on: a. a need to discover the most effective conditions of motivation and environment for the use of television as a tool of formal education, and b. the possibility that educational television may be part of a solution to the current problems of teacher and classroom shortages.

The motivated subject competed with members of his group for an award of monetary value. The unmotivated subject was requested to complete an opinion survey pertaining to the educational television program. The two environments treated were the home and the classroom.

A 23-minute educational television program entitled "Explorations in Space" was produced for purposes of the experiment. The volunteer subjects were 11th graders having a mean IQ somewhat above average. They represented the medium to high income levels according to the 1950 census. The students were divided into six groups: (1) unmotivated home, (2) motivated home, (3) unmotivated classroom, (4) motivated classroom, (5) "casual" viewers at home, and (6) non-viewers.

There were no differences among the mean IQs of the four experimental groups 1 through 4. There was no correlation between IQ and test scores in these four groups. There was a correlation between test score and IQ in group 5 at the .05 level of confidence and in group 6 at the .01 level of confidence. The sub-classes of subjects were too small for a statistical analysis of interest and background in astronomy and space travel, but there appeared to be a positive correlation between sex and these two factors. There were no differences between the male and female means within groups 1 through 4 at the .01 level of confidence.

Findings: The immediate recall test was administered 24 hours after the telecast. The delayed recall test was administered two weeks after the immediate recall test. The mean test scores for the groups were found to be significantly different at the .01 level of confidence for both administrations of the test. Motivated viewing proved to be more effective than unmotivated viewing in achieving retention at the .01 level of confidence. There appeared to be no differences in retention due directly to differences in environment.

Author draws the following conclusions. 1. Motivation is significantly important to retention in educational television viewing. 2. There are no significant differences in retention due to differences between the home and the classroom environments. 3. The mean scores suggest that the unmotivated student may learn more in the classroom than he does at home. 4. The mean scores suggest the motivated student may learn more at home than he does in the classroom. 5. Educational television in the home may be effective as part of the solution to the increasing shortages of teachers and classrooms.

43--Parsons, T. S. A comparative analysis of some outcomes of instruction by kinescope, correspondence study and classroom procedures. Ann Arbor, Mich.: School of Education, University of Michigan, 1955. (duplicated copy of a paper read at the APA convention, San Francisco, Sept. 1955)

Method: Study was a comparison of kinescope-correspondence study groups without an instructor, conventional classroom discussions with an instructor, and independent correspondence study. The subject taught was the psychology of child development, a one semester course.

Forty university students were subjects, twenty of these serving as controls with no instruction. The remaining twenty were split into three groups to receive instruction in one of the three ways mentioned above. The kinescope group was further subdivided into two viewing groups. All experimental subjects used the same textbook, a syllabus workbook and several manuals.

The classroom group met twice a week with the instructor while the kinescope group met approximately once a week to view the filmed TV lectures.

Course effectiveness was measured before, during, immediately after and approximately four months following the course. The criteria used were academic achievement, certain group process measures (such as sociometric choice tests), and student's attitudes toward the experience.

Findings: There were no significant differences among the three experimental groups on achievement test before, during or immediately after the course. On the immediate posttest, all three groups had significantly higher grades than the control group. In the retention test, four months later, a significant difference was found which favored the correspondence group over the classroom group. The kinescope group, which was in-between the two groups in terms of scores did not differ significantly from either the correspondence or classroom groups.

Scores based on evaluation of all written work done throughout the course showed no significant differences among the experimental groups. When net gains were computed for the three groups, no significant differences were found either from pre- to posttest or from posttest to retention test. The relative ranks of the three groups on test scores were constant throughout. The correspondence group was the highest followed by the kinescope group and then by the classroom group.

A questionnaire on group cohesiveness was administered only to the kinescope and classroom groups since the correspondence course group had little or no contact with each other. Means for the two groups on cohesiveness scores were not significantly different at any point during the semester.

Group structure, as measured by a sociometric test, revealed that total choices (positive plus negative) increased significantly for the classroom group from pretest to posttest. The kinescope choices decreased but not significantly. The difference between the two groups was significant at both the posttest and the retention test. Classroom total choices were higher in both cases than the kinescope group.

A highly significant positive relationship was found on student preferences for type of instruction desired according to the type of treatment they underwent. In other words, those who took the classroom treatment, preferred classroom instruction, those who viewed kinescopes, liked kinescope classes, and similarly with the correspondence group. All counter-tendencies noted were those who made a preference for classroom instruction from among the correspondence and kinescope groups.

Evaluations on the course rated on a three point scale revealed mean ratings to range from 1.0 (more valuable) for the classroom group to 1.7 for the kinescope group and 1.4 for the correspondence group. (A value of two was the midpoint on the scale and a value of three was defined as "less valuable").

44--Pasewark, W. R. The effectiveness of television as a medium of learning typewriting. Unpublished doctor's dissertation, New York University, 1956 (Abstract).

Method: In order to ascertain the effectiveness of television as a medium in teaching typewriting, 44 students were split into two classes, one to receive TV instruction and the other to receive conventional instruction. The two groups were matched on ACE scores. The students were regularly enrolled at Michigan State University and were taking the course as an elective. None had previous formal instruction in typewriting.

The instruction was given on five days a week, one-half hour a day for 48 days. The same instructor taught both the conventional and the TV groups. There were no instructors or proctors in the television receiving room. Achievement was measured by a timed typing test given at the end of the course. In addition, nine other timed writing tests were spaced throughout the course.

Findings: Television students typed significantly faster than conventional students on the timed test at the conclusion of the course. They also typed with less mean errors but this difference was not statistically significant.

On all of the rest of the timed tests, television students did better than conventional students. There were significant differences on five of these tests, three of which were the tests preceding the final. Conventional students typed two with slightly less errors than television students on the first two timed tests. On the last seven, television students typed more accurately. None of the differences were significant however.

45--Paul, J. & Ogilvie, J. C. Mass media and retention. Explorations, No. 4, 1955, 120-123.

Method: This is a follow-up of the D. C. Williams study in Explorations No. 3 (q.v.) which attempted to measure the differential effects of four different media in a classroom learning situation. A retention test using the same multiple-choice questions used in the immediate recall test was administered to 74 of the 108 students who had been subjects in the original experiment eight months previous. A control group of 15 students took the examination.

Findings: An analysis of variance showed that after eight months, there were still significant differences between the various media groups. The ranking of the groups was still the same for three of the groups. TV was highest followed by radio and then the reading group. The studio group, which was last in the immediate posttest jumped, however, to second place in the retention test. The authors do not comment on this beyond saying that conditions for the studio group in the exposure situation were such that no conclusions could be drawn for this group.

In measuring amount of information loss for the various groups, analysis of variance showed that the losses were not significantly different among the groups. In other words, forgetting was proportional to the amount originally learned and was independent of the medium by which the information was acquired. Measuring the amount retained against the performance by the control group, the authors found that all four groups did significantly better than the control group.

46--Penn State TV Research Project. Progress Report, Fall semester, 1955. University Park, Pa.: The Instructional Research Program, Pennsylvania State University, Feb. 20, 1956 (duplicated).

Report summarizes research accomplished on courses taught at Penn State during the first semester, 1955-56. Nine courses were given over closed circuit--Air Science, Chemistry, Commerce, Psychology (2 courses), Economics, Music, Education and Speech.

Method: Differences between various reception conditions were tested by use of achievement tests for the different courses. Also investigated were students' attitudes toward instruction by TV through the use of a questionnaire and a "free choice" situation. Free choice situations was the option given to students exposed to both TV and non-TV sessions to leave the non-TV sessions if they desired for a TV classroom. Problems investigated were:

a. The effect on student achievement of varying the size of the classes in television rooms.

b. Effects on achievement of the use of proctors to supervise television classes varied by:

1. Amount of proctoring (none to full time).
2. Kind of proctor--student peer, seniors, graduate assistants and faculty.

c. Effects on achievement and attitudes of different patterns of instruction.

1. Two-way microphone system.
2. 35 minute lecture plus 15 minute discussion led by graduate assistants.
3. 2 lectures a week followed by full period of discussion.
4. Rotation of groups into and out of TV origination room where principal instructor presented instruction.

d. Use of "free choice" situation to measure students' attitudes towards value of TV instruction.

Findings: No significant differences as measured by achievement tests in the following comparisons:

1. Varying the size of classes in the television rooms (14-200).

2. Amount of proctoring, kind of proctoring.

3. Kind of instructional pattern--opportunity for two-way communication, 35 minute lecture followed by 15 minute live discussion, lecture followed by students listening in by TV on 15 minute discussion, lecture followed by no discussion. Students however preferred 2 fifty minute lectures via TV followed by one full period of discussion over 40 minute lecture-10 minute discussion routine carried out three times.

4. Rotation of groups. Types of rotation were: during the first four weeks of course, one group stayed in origainatin room, one in TV rooms and two other groups spent two weeks in a TV room and two weeks in the originating room. Then, TV room group changed with originating room group while the other two groups continued rotation.

5. TV rooms versus originating room.

6. Scores by students in three zones in originating room (front, middle, rear).

Other findings:

1. In "free choice" situation, two classes of chemistry were given five weeks apiece in TV rooms and originating room. Then all were brought into originating room and told they could stay or move out to TV rooms if they wished. Procedure carried out for three sessions. At the third session, students told that their choices would be permanent. In one class of 272 students the numbers of students leaving the originating room were:

First free choice lecture	77
Second " " "	83
Third " " "	83

In the other class of 312 students, numbers leaving originating room were:

First free choice lecture	108
Second " " "	106
Third " " "	104

2. Significant difference was found in attitudes toward discussion arrangement. Groups given opportunity for live discussion after TV lecture were much more favorable towards discussion than were groups who "listened in" or did not have any discussion.

3. Over 18 class periods in a psychology course, requiring attendance and making attendance optional did not affect per cent of absences for both sections.

4. On a five point attitude scale given to students concerning enjoyment of courses over TV, results showed no consistent pattern indicating that "their reactions involve a mixture of attitudes towards the course per se and to the instructor as well as to the mode of presentation via television."

47--Pollock, Josephine & Meloche, Gladys. The effectiveness of television in teaching tailoring a coat. Madison: University of Wisconsin Extension Service, College of Agriculture, March, 1954. (duplicated)

Method: Personal interviews were held with a sample of women who had written in to the TV station requesting a leaflet on tailoring. The program under study was a series of 22 programs of 15-25 minutes in length on "Tailoring a Coat" given over station WTMJ-TV. The station reported 8626 requests for the leaflet. Addresses were missing for a great many of these and the sample was drawn from 3589 names for whom addresses were known.

A sample of 196 names were drawn to assure a final sample of 150. 156 or 79.6% usable questionnaires were obtained by the interviewers. The personal interview consisted of 49 questions, many of them similar to those used in the Wilson and Moe study (see abstract). Although the programs were given between January 22 and May 4, 1953, interviews were carried out in July and August of that year.

Findings: Based on 156 respondents, the survey showed the following results.

Audience: 11.6% lived on farms
8.3% lived in the country but not on farms
5.0% lived in villages
75.0% lived in the city
26.0% were employed either part- or full-time.

Ages: 32.7% were under 35
29.5% were between 35 and 44
21.0% were between 45 and 54
14.0% were 55 and over.

Children: 68.00% had children under 18
23.00% had one child under 18
25.60% had two children under 18
12.19% had three children under 18
6.50% had four children under 18

Education: 1.9% had less than 8th grade
18.6% had 8th grade
56.3% had from one to four years of high school
21.8% had some education beyond high school

Almost all of the women had had some training in clothing construction. All had sewing machines or access to one. Of the 156 who watched any of the series, 66% said they had done considerable sewing, 30% said they had done some sewing and 1.3% said they had done hardly any.

The number who remembered seeing each program ranged from 56 for the last program in the series to 120 for the fourth program. The average number of viewers for the first 12 shows was 102 out of 156. The average number of viewers for the last 11 shows was 80.4. The average number of viewers for the first eight shows was 109.5 and the average number of viewers for the last eight shows was 74.5. The number of programs viewed without regard to sequence was:

20 women viewed five or less programs
26 women viewed six to 10 programs
47 women viewed 11 to 15 programs
39 women viewed 16 to 20 programs
24 women viewed 21 to 23 programs (23rd program was a finale to the series consisting of a style show and contest)

Women who made garments saw more of the shows than those who did not. 36.5% of the women made garments as a result of watching the program. 54.4% of these saw two-thirds or more of the shows. 80.7% of those who made garments saw half or more of the shows. Of those who made no garments, 31.3% saw two-thirds or more and 54.5% saw half or more of the shows.

141 of the 156 women said they looked at the circular carefully when it was received. Of the women who made garments, 56 of the 57 said they looked through the circular when it was received. 45 respondents said they thought the circular helped them in better understanding the demonstrations.

48--Remenyi, J. Literature on television. School & Society, 1952, 75, 70-72.

Personal reactions by a Western Reserve University professor to teaching a comparative literature course on television.

Author concludes that "uneasiness" aroused in connection with television instruction can be allayed by considering the following items:

a. There is no "trick" to the teaching method. The instructor must be true to himself and to the quality of his intelligence.

b. Speak in sentences rather than in paragraphs because of limited amount of time available,

c. It is necessary that condensation or compression be followed in the organization of material. There is not much opportunity for repetition.

d. Since the instructor gets no direct feedback, he must produce the illusion of physical presence to the viewer.

e. Compromise is out in teaching over television. The TV medium should not lead to the fallacious assumption that the medium's "popular" character means a lowering of standards for teaching.

f. Much preparatory work must be done before appearing on TV. The decision of what to omit must be made without neglecting the material needed for substantial information.

g. Credit students have to do real class work.

49--Rock, R. T. Jr., Duva, J. S. & Murray, J. E. *Training by television: The comparative effectiveness of instruction by television, television recordings, and conventional classroom procedures.* Port Washington, L.I., N.Y.: Special Devices Center, SDC Report 476-02-2 (NAVEXOS P-850-2) (no date).

Method: Naval Air Reservists at nine naval air stations were used in the experiment, grouped in the following manner: (1) three stations were taught via live television, (2) three stations saw kinescopes of the same lesson, (3) three stations received the same lessons given by local instructors. Approximately 40 men were at each station making a group of 100 to 120 men receiving instruction under any one condition. Two series of eight lessons were given, one a refresher course for officer pilots and the other a basic training course for enlisted men. All were told that they were partaking in an experiment. Pre- and posttests were given to all trainees after each of the eight training sessions. In the live television groups, a feedback microphone was placed so that students could ask questions during the lesson. Sixteen-inch receivers were used with ten men assigned to each receiver. No student was more than 13 feet from the receiver and no one viewed the screen at an angle greater than 35 degrees. For those viewing television recordings, there were from 20 to 40 men to a room with the films being shown on a screen projected by a 16 mm sound motion picture projector. The local instructor situation (numbers per group not mentioned) was not identical with the live TV and TV recording situations in that the instructor gave his lesson prepared from a lesson plan used by the television instructors but was not a verbatim script. The tests were multiple choice type. Thirty questions were given in the pretest and these 30 questions plus 30 additional were given in the posttest. In addition, after each lesson, written comments were invited from the trainees on their reactions to the lesson. Comments were made by the research staff and an advisory group of naval officers, also.

Findings: Based on achievement on the multiple choice examinations, it was found that:

(1) In live TV vs. local instructor groups, the TV groups were superior in 50% of the comparisons made for the officers' group, and in 53% of the comparisons for the enlisted groups. TV was found to be equal to local instruction in 38% of the comparisons for the officers' and in 20% of the comparisons in the enlisted groups. TV was inferior in 13% of the comparisons for the officers' and in 27% for the enlisted groups. The authors conclude that 80% of comparisons showed TV as good as or better than local instructors.

(2) When television recording groups were compared with local instructor groups, 38% of comparisons were superior for the TV recordings in the officers' groups and 47% were superior for the enlisted groups. TV recordings were found to be equal to local instructors in 44% of the comparisons for the officers' and 27% for the enlisted groups. Local instructors were superior to TV recordings in 19% of comparisons for the officers' and in 27% for the enlisted groups. Authors conclude that 75% of comparisons showed recordings as good as or better than local instructors.

(3) In comparisons between the live TV and the recorded programs, in no comparison was the recording superior to the live TV program. In 94% of the comparisons for the officers and in 73% for the enlisted men, recordings were equal to live TV. In 6% of the comparisons for the officers, recordings were inferior to live TV; for the enlisted men, in 84% of comparisons, recordings were as good as live television.

Comments by the trainees were found to be favorable to TV presentation of training. The project staff commented on the need for more visual emphasis in programs, need for better production techniques. The talkback system of placing a microphone for direct communication with the TV instructor was felt to be inadequate in that a lot of trivial questions were asked by the students.

The author's conclude that: (1) direct narration is effective. In analyzing the content of the eight programs in each series, the authors found that those programs in which the instructor talked directly to the students with no use of dramatization, tended to be superior to local instruction. (2) animated film seems to be effective. (3) the combination of dramatic action and narration is not as effective. Authors surmise that a dramatization of lesson material with the instructor describing the action not shown on the screen may have led to poorer results in the TV groups.

The authors do not mention whether there were any differences between the three local instruction groups. For any specific program in the series, the three live TV and the three recorded TV groups received identical instruction from the same instructor. (This instructor was chosen from those available at four locations). For the same program, the local instructor groups received instruction from three instructors. Even though content was controlled by use of a common lesson plan, manner of presentation was not controlled in the case of the local instructor groups. The pool of available instructors at any one of the three locations used in the local instructor condition was undoubtedly smaller, thus more restricted in choice, than the pool available for choosing of the TV Instructor.

--Rock, R. T. Jr., Duva, J. S. & Murray, J. E. Training by television: A study in learning and retention. Port Washington, L.I., N.Y.: Special Devices Center, SDC Report 476-02-3 (NAVEXOS P-850-3)(no date).

Method: 3000 Army Reservists were given a series of eight one-hour telecasts concerned with different phases of an Army division's operations in an encounter. Subjects ranged in rank from private to colonel with almost all branches of the Army represented. Subjects viewed in 10 different cities in groups of varying sizes. Receivers ranged from 7" screens to theater-type projection television. The most typical viewing group, authors say, was twenty reservists watching a 16 inch TV screen. Each of the eight programs was produced with professional actors. Learning was measured by multiple choice type questions. A pretest and posttest was given for each lesson except the first in the series. Pretest questions were included as part of the posttest set of questions. A set of questions used as pre- and posttest questions were also used for measuring retention from one to six weeks after presentation of that particular lesson. Included in the testing sessions were questionnaires designed to elicit reactions toward television instruction. At the end of the final session, a rating scale for reactions to the series as a whole was included in the testing session.

Findings: (1) "All grades of officers and enlisted men made higher scores on the test questions after the telecasts than they did before the telecasts." Figures for gains in each of the seven telecasts in which tests were given are not shown in this report. (2) It was found that all groups, categorized according to rank, made significantly higher scores after viewing the telecasts. In addition, trainees in the arms did better than trainees in the services. (3) There was very high retention reported. On retention tests, officers retained 85% of newly learned material over a period of six weeks while enlisted men retained 65% of newly learned material in the same period.

In questions seeking attitudes toward training by television, it was found that the particular series was found interesting or very interesting by four-fifths of the group. A majority of the group deemed the series as good or excellent. In other questions of this type, about three-fourths of the group said they would rather be taught by TV than by the usual method. Most of the group thought they could watch television one or two hours a day. In all of the figures above, the enlisted men had a smaller percentage favoring television as a method of instruction and favoring this particular training series than the officers.

In analyzing the TV programs, the authors state that "narration by itself or combined with some other form of teaching was extremely effective." The least effective means in terms of learning was drama alone in the programs. Amount of learning, the authors conclude, is also directly related to explicitness of treatment.

In this report there is no mention of comparisons of various methods of viewing which the authors say took place.

51--Schermerhorn, R. A. _A sampling of student reactions to the Western Reserve University telecourse in principles of sociology_. Cleveland: Western Reserve University, August, 1954 (typewritten).

A resume of a telephone survey conducted a month after a course in sociology was given over TV. No indication of number enrolled in the course or the size of the interview sample.

Both credit and non-credit students were similar in that:

a. Over 90% of both groups were female.
b. Over 90% of both groups were married.
c. Median schooling was 13½ to 14 years.

Credit and non-credit students were dissimilar in that:

a. Non-credit students had a median age 10 years older.
b. Median number of years out of school for the non-credit students was 25. Nearly 60% of the credit students were currently enrolled at Western Reserve.
c. 61.4% of the non-credit students had viewed an earlier telecourse compared to 25% for credit students.

Reactions to the program of both types of students were most similar on the following points:

a. In judging the lectures to be at the proper level of difficulty (100% of credit, 90.0% of non-credit students).
b. In failing to get others to watch TV courses with them (75% credit, 68.2% non-credit).
c. In failing to discuss the subject with others (67%, 56.8%).
d. In reporting that the course helped them with personal problems (over 80% for both groups).
e. In reporting the course helped to understand political and social problems (100%, 75%).
f. In making no specific suggestions for the instructor to improve TV technique (75%, 63.6%).
g. In the proportion of "emotional reactions" to the course (33%, 36%).

Reactions were least similar between the two groups with respect to:

a. Indicating a desire to enroll in the university (75% of credit, 67% of non-credit students).
b. In desiring more visual aids (75% of credit students did not desire more, 40.9% of non-credit students said they did).
c. In willingness to state chief criticisms of the course (66%, 32%).

Common reactions of non-credit students:

a. Lack of desire to take this course for credit (60%).
b. Desire to take another course for credit (54.5%).
c. Reported increase of desire to read (77.3%) but failure to do so (61%).

d. Generally favorable evaluation of syllabus (54.5%).
e. Favorable attitude toward home discussion groups (84.1%) but no report that such groups were formed.
f. No changes to suggest if course were repeated (70%).

Common reactions of credit students:

a. Agreement that there were not too many assignments (60%).
b. Doing extra readings from bibliography (75%).
c. Reporting clear connections between text, syllabus and lectures (67%).
d. Text book was satisfactory (66%).
e. Syllabus was satisfactory (66%).
f. Main reason for taking course: to get a degree (66%).
g. Desire to take more telecourses (92%).
h. Desire for increased communication with other students (58%).
i. Desire to meet with other students and instructor during course (83%).

52--Schlaak, O. F. The planning, production, and evaluation of two experimental series of classroom telecasts for use in the intermediate grades in the Columbus, Ohio, area. Dissertation Abstracts, 1956, 16, 815.

Two series of programs were produced for intermediate grades, one in art and the other in science. Researcher wanted to find out whether classroom telecasts could modify the interest and attitudes of intermediate grade children and their teachers. Programs were 30 minutes in length, evidently 11 programs in each series.

Evaluation was accomplished through the use of questionnaires executed by the teachers. Discussions were also held with the teachers in which they reported on reactions of pupils.

Study concludes that classroom telecasts have an effect on attitudes and interest of teachers and pupils who use them. There was a tendency on the part of both teachers and pupils toward more favorable attitudes on art and science after exposure to both series. The programs provided motivation to spur outside activity and additional research.

53--Scothern, R. & Harwood, K. Students of "Shakespeare on TV." Journal of the AERT, 1955, 15, No. 1, 12-15.

Authors report a description of students who took Dr. Frank Baxter's telecourse on Shakespeare for credit. Data was gathered through a questionnaire executed by those who appeared on-campus at the University of Southern California for the final examination. All but two of the 179 who completed the course returned questionnaires. One-fourth of those who enrolled for credit did not complete the course.

The typical enrollee was a 40 year old married woman. Over 80% of the credit students were women and nearly 75% of these were married. 90% of the male students were married with their median age at 33 years. More than one-fifth had children who were less than 6 years old and almost half had children who were 17 years of age or younger. More than 60% of the students were parents.

The average student had completed two years of higher education. A greater proportion of men than women had been to college. Broken down by years of school, about 10% had not finished high school, about 20% had finished high school, 40% had some college education, 20% held bachelor's degrees and 10% held graduate degrees. Most of the students who had college degrees had either majored or minored in education. Most of the other holders of degrees had major study in fields that were allied with literature.

Half of the students had never before taken any kind of college correspondence course, and 70% had never before studied the plays of Shakespeare in college, although almost all had studied Shakespeare's plays at some time.

Nearly two-thirds of the enrollees, as might be suspected from the high proportion of women, had homemaking as their principal occupation. However, most homemakers were engaged in other part-time or full-time occupations. About one-third of all students worked in educational institutions as teachers, librarians, or nurses. Most of the teachers taught in elementary schools. A comparison of education with occupation showed that of people who had four year college degrees, few except professional educators enrolled for credit.

Almost all had access to a television receiver and regular viewing of television programs seemed the rule. However, about one-third reported that regular viewing was confined to educational programs. Programs considered educational were ones such as Omnibus, You Are There, Cavalcade of America, Hallmark Playhouse.

Personal pleasure was mentioned most often as the reason for having enrolled, with desire for college credit mentioned next. Studying with Dr. Baxter, improving one's professional status, and a liking for Shakespeare's plays followed as reasons for enrolling in that order. More than 80% stated that they would enroll in another semester of the course if it were offered.

Students' choices of future telecourses were, in the order of their popularity, literature, history, art, music, psychology, natural sciences, and social sciences. They chose literature three times as often as the next popular subject.

Students first heard of the course usually through television. The number who first heard of the course through television equaled the number who heard it through word-of-mouth and newspapers combined. 10% first heard about the series through mailed folders sent out by the University.

54--Shimberg, B. Effectiveness of television in teaching home nursing. (preliminary report) Princeton, N.J.: Educational Testing Service, Research Bulletin (RB-54-19), August, 1954 (duplicated).

Report of research conducted on the effects of teaching the American Red Cross home nursing course through TV.

Method: Three experimental groups were used: (1) TV-only which received all instruction via TV. (2) TV-plus-practice which received in addition to the TV instruction, a weekly practice session. (3) Standard classroom group which was taught the regular course without TV. The two TV groups received 13 half-hour programs twice a week. The classroom group attended seven two-hour sessions composed of lectures, demonstrations and supervised practice. Subjects were volunteers from organized groups in Houston and Oklahoma City. The TV groups were in Houston and watched the program at home between 8:30 and 9 p.m. Tuesdays and Thursdays. The TV-plus-practice group also met at a local center for one hour of supervised practice every Wednesday. The classroom group met in Oklahoma City, broken down into morning, afternoon and evening classes meeting twice a week. Effectiveness was measured by comparisons between groups both on a battery of pretests and a similar battery of posttests. A criterion of eight or more of the 13 TV presentations was set as a definition of regular viewers. In subsequent analyses, the number per group by this criterion was 77 for TV-only and 43 for TV-plus-practice. Standard classroom group number was 217.

Findings: Television instruction was found to be as effective as classroom instruction in teaching facts about home nursing. Students taught by TV did almost as well on the performance test as those taught in the classroom although total time spent was less for the TV students. The average TV student spent between five and six hours in front of the TV set, while the average classroom student spent eleven or twelve hours in class. No differences were found between the TV-only and TV-plus-practice groups in terms of performance test scores.

The attitude of those who viewed the TV programs regularly was overwhelmingly favorable toward TV instruction. Questionnaire answers indicated that more participation and more satisfaction might ensue from such a course if (1) the course were presented at a more convenient time, (2) the course were shortened, (3) the practice sessions were better organized,

(4) students were presented with a study guide or course outline, and (5) the course took into consideration the specific home health needs and interests of the audience. (The above reasons were taken from a prepared check list on the questionnaire and were not volunteered by the subjects).

55--Snyder, H. A. *An evaluation of telecourses for credit. Test results of WQED's "High School of the Air."* Pittsburgh: WQED Press Release, March 14, 1955 (duplicated).

Report summarizes the results of tests in three subjects offered for high school credit by the Pennsylvania State Department of Public Instruction. Three hundred thirty-seven objective tests were given in English, algebra and World History. Seventy-one per cent of the tests were passed with 29% failures.

Passing of the tests entitled students to official credit toward a high school diploma and could also be used as credits for college entrance. Eighteen telecasts with course outlines were given in each of the subjects. These telecasts covered two years of high school English and one full year of algebra and World History.

Broken down by subject matter, 67% of the enrollees passed the English tests, 77% passed algebra and 74% passed World History. Thirty-one inmates of a penal institution took the courses with 18 completing the course and taking the examination. Ninety-five per cent of the examinations taken by this group were successfully passed.

56--Soop, E. J. The University of Michigan television hour. *Adult Education*, 1952, *2*, 113-116.

Report describes a one hour weekly telecast produced by the University of Michigan over a Detroit station in 1950-1951. The series is still on the air. Each 60 minutes was divided into three 20 minute segments. One was a 14 week telecourse comparable to a traditional campus course. One 20 minute segment was a seven week course of a more popular nature and the other 20 minutes each week was devoted to a feature on some aspect of the university. Students could enroll in either the seven week or 14 week courses and receive supplementary written materials. If they returned a completed copy of the course examination they received a certificate of participation in the course.

In the first 14 weeks of the 1950-1951 series, the enrollment figures were as follows:

For the 14 week course, Human Biology	410 enrollees
For one 7 week course, Photography	836
For the other 7 week course, Hobbies put to work	251
Total enrollees	1497 (929 males, 568 females)

In the second 14 weeks, the enrollment was:

For the 14 week course, Lands and people of the Far East	220
For one 7 week course, Interior design	522
For the other 7 week course, Retailing and the customer	127

Surveys by the station WWJ-TV indicated an average viewing audience of 100,000.

In the 14 week courses, 71% saw 11 or more programs and 35% saw all of the programs. In the 7 week courses 83% saw five or more programs and 4.5% saw all of them. As many as eight persons to a set were reported for the programs. 55% of the respondents said that there were three to four persons per set.

Age percentages of the enrollees were: Teens-9%, 20's--17%, 30's--27%, 40's--26%, 50's--16%, and 60's--5%. By educational level, 5.7% had a grade school education, 51% high school, 2.9% business school, 30.6% college, and 9.8% professional or graduate school education.

57--Stanley, DeG. *Educational television programs and evaluations, 1954-1955*. A report to Dr. Ralph Dailard, Superintendent. San Diego, Calif.: San Diego City Schools, Instructional Aids Dept., June 30, 1955 (duplicated).

Ninety-two ½-hour programs for secondary and elementary schools in San Diego were telecast over two local commercial TV stations during the 1954-1955 school year. Twenty-nine of these programs were for the secondary schools while 63 were for the elementary. Programs were telecast twice a week over the two stations for the first month and then four times a week until the end of the first semester. Twice a week scheduling was done in the second semester.

Programs were in the following categories:

Elementary level — Reconstructed classroom programs

Art	1	
Language arts	7	
Music	4	
Social studies	3	
Special observances	8	
		23

Community Resource Programs

Language arts	1
Music	7
Natural Science	9
Safety education	3

	Social studies	5	
	Social studies-science	10	
	Special observances	4	
			39
	Public Relations Programs		
	American Education Week	1	
Secondary schools	Reconstructed classroom programs		
	Language arts	5	
	Music	4	
			9
	Community Resource Programs		
	Industrial arts	3	
	Language arts	8	
	Music	1	
	Science	8	
			20

Evaluation method: An indication of effectiveness for the programs was sought by the use of four instruments: (a) a teacher subjective evaluation (rating questions about 7 major points on a five point rating scale); (b) a tape-recorded teacher analysis of strengths and weaknesses of the programs; (c) a stenograph-recorded teacher reaction to the secondary English series; and (d) information quizzes on two of the elementary programs to test learning. In addition, a survey of set utilization in the schools was conducted on one week.

Findings: A total of 387 forms were returned for 55 of the elementary school programs, 31 forms were returned for 14 of the secondary programs. In general, ratings were quite high for all parts of the questionnaire. Questions were on such things as program content, grade level appropriateness, program utilization, quality of reception, over-all educational value, presentation of items otherwise not available. On the question of the kinds of learning experiences motivated by the program, almost all of the teachers checked follow-up discussions as having taken place. The overall educational value of the programs was rated from excellent to good by approximately 70% of the teachers reporting.

In the tape-recorded teacher analysis, twelve second grade teachers met in a discussion group to discuss two of the programs. The following favorable factors were recorded:

1. Pupils are especially interested in the activity of other pupils seen on television.

2. Motivation for teachers is effective.

3. When a program's content is a review of past units and a preview of future units, its appropriateness as an instruction tool is increased.

4. The use of appropriate supervisors as consultants contributes to the meaningfulness of the program.

5. The study guide, when used, does contribute to the value of the television program.

6. Indirect outcomes of the program (such as development of co-operative working attitudes in pupils) were observed by teachers.

7. Television is an effective in-service teacher training aid.

The following unfavorable comments were presented:

1. Viewing environoment most often approaches assembly rather than normal classroom conditions.

2. Use of resource persons from the community without proper training in vocabulary may reduce the effectiveness of the program.

3. The naturalness of pupils (especially in speech) falls down when parts have been memorized to an excessive degree.

In the stenograph-recorded teacher analysis, five high school English teachers who had seen one or more of the telecasts in the English series discussed the programs. The following points were brought out:

1. The biggest weakness was the difficulty of coordinating the programs with classroom activity.

2. The programs should try to utilize community resources, rather than duplicate regular classroom instruction. There should be a combination of community resources and students on the programs.

3. Students are more impressed by what outsiders say who are experienced in their particular lines of work than by what the teacher may tell them.

Two studies of elementary school programs produced learning. In one, a true-false test of 10 items was given before and after a telecast to a sample of second-graders. Results were confounded by the fact that two of the items either were not covered or not covered adequately during the program. Also, invalid answers were given by many--checking both the yes and no response boxes to an item. Generally, a substantial increase in correct answers was recorded on the posttest. Part of this was due to a decrease in invalid answers. A second test was conducted with sixth-graders on another program. In this instance a posttest only form was used. A control group of non-viewers was used for comparison purposes. Learning was achieved, the author states, on the items presented most vividly on the program. Again, there were confounding factors. One was that the test and the program were poorly interrelated.

On the survey of set utilization, the week of December 6 was used. For the two elementary programs for that week, out of a total of 66 schools, 37 reported watching both programs, 15 watched one program, 12 watched neither, and two did not report results. Eight of the reporting schools stated that sets were used for viewing other programs. For the two secondary school programs, out of a total of 16 schools, two reported watching both programs, four reported watching one and 10 reported watching neither. Author states that the heavy schedule of Christmas activities was the reason given by reporting schools for not watching the programs.

58--Stanley, DeG. *A summary report and evaluation of San Diego city schools --KEMB-TV, Channel 8 educational television experiment*. San Diego, Calif.: San Diego City Schools, June 1952 (duplicated).

This report contains experiences of the San Diego city schools in telecasting a six week, 18 program series of programs showing typical classroom situations. Programs were broadcast April 29 through June 7 on a thrice-weekly basis, Tuesdays, Thursdays, and Saturdays. Purpose of the programs was two-fold: (1) to serve as a public relations measure and (2) to provide direct in-school instruction. Although the length of each session is not mentioned in this report, the author states that each program was to be developed from twenty or twenty-five minute lessons which were part of the regular classroom schedule at the time the program was produced. An attempt was made to avoid developing programs which were "culminations of units of work."

The 18 programs were scheduled in the following manner:

Elementary level	Primary (1st 2d 3d)	Handwriting Music Spelling
	Intermediate (4th 5th 6th)	Social studies Arithmetic Music Science
Secondary level	Jr. High School	Arithmetic Science American history Homemaking
	Sr. High School	Art Science Office Practice Library science Senior problems
San Diego schools service depts.		Cafeteria dept. Health education dept.

For each of the above subjects, a teacher and his class were selected from among the San Diego schools.

Twenty 20" receivers were placed in various schools. In elementary schools, the receiver was placed in the 5th grade room. In the secondary schools, a film projector room was used where available, otherwise the set was placed in the room of a teacher whose preparation period coincided with the time of the telecasts. This meant that for both the fifth graders and the secondary school students viewing the telecasts, some of the material was at too elementary a level. In the case of the fifth graders, some of the material was at an advanced level up to seven years in advance.

Evaluation was carried out by means of a questionnaire filled in on a voluntary basis by teachers and principals. Author points out the difficulties of such an evaluation procedure. Returns were small, judgments in some cases were made by viewing only a few of the 18 programs, the subject matter and grade level offerings were so varied that precise evaluation could not be accomplished.

With respect to the public relations value of such a program series, each program was rated as good or better on a three-point rating scale of good, fair or poor by elementary secondary teachers and principals. With respect to opinions on the instructional value of the courses, the findings were mixed although where low ratings occurred, they were in large part due to elementary teachers rating high school subjects or high school teachers rating elementary subjects.

The author cites statements compiled from evaluation sheets as follows:

The value of TV as a public relations media seems clearly established.

Too little experience has been gained as yet to properly evaluate TV as a proven means of direct instruction.

Demonstration lessons such as in science seem to have a higher direct instruction value than other types of programs.

Study guides would greatly increase the value of TV direct instruction.

Seeing others of one's own age doing a good job can motivate thinking and inspire good work.

59--Stromberg, E. L. College credit for television home study. *American Psychologist*, 1952, *7*, 507-509.

A resume of experiences by the author in presenting a 13-week introductory psychology course at Western Reserve University (Fall Semester '51).

Course was broadcast three times a week and although only 19½ hours of instruction was given, three semester hours of credit were given. Registration for course was $16 per credit hour. Auditors paid $5 for the course. The fee covered a syllabus and workbook. Two textbooks were also used for the course, to be purchased separately.

Course instruction included nine assignments from the workbook (including 24 chapter assignments in the textbooks) to be mailed in during the course. A tenth assignment was a 1500 word paper. During the final week, all credit students came to the campus for a written final examination.

At registration, 66 students were registered (at a cost of $48). Four hundred seventy-two registered as auditors. Thirteen of the 66 credit registrations dropped during first weeks. Ten failed to complete the course, 10 asked for additional time to complete the written work, and 35 presented themselves for the final examination.

A standardized examination composed of 110 multiple choice items was given for the final examination. From previous scores on 1200 students, the range was from 31 to 95 with a median score of 54. For the television students, the range was from 35 to 95 with a median score of 68.

Author remarks that the 1500 word papers were of high quality.

Age range of students was from 19-over 50. No estimate made of viewers outside of the Cleveland area but within Cleveland, estimate of viewing audience was 70,000 persons who viewed the sessions regularly. (No details given of method used)

Author concludes that one should not underestimate the audience. He believes the success of the course can be attributed largely to:

a. careful choice of instructors.

b. unwillingness to compromise on any of the subject matter in order to make it seem like a new-found magic.

c. straightforward approach without staged drama or other practices ordinarily found in the classroom.

d. adaptation of television to the professor and not the professor to the television medium.

--*Survey on telecourse* "*America Elects a President*." Milwaukee: Wisconsin State College, 1956. (duplicated)

A mail survey was accomplished on a one semester hour political science course given February to May 1956. There were 137 credit students and 143 non-credit viewers. Seventy-six non-credit and 111 credit students returned the questionnaires.

Breakdown of the questionnaire for the two groups:

	Male	Female
Non-credit	18	58
Credit	29	82

Age group	Under 20	20-30	30-40	40-50	Over 50	No response
Non-credit	4	10	15	32	14	1
Credit	1	15	25	50	18	2

Education	Grade	High	College degree	College 1 yr	College 2 yr	College 3 yr
Non-credit	6	31	25	2	7	1
Credit	1	26	17	0	3	3

How they felt about the course:

	Excellent	Good	Fair	Poor
Non-credit	62	14	0	0
Credit	80	26	5	0

Other subject suggestions (listed only for credit viewers)

History	16
Political Science	13
Psychology	8
Education	8

All other suggestions four persons or less

61--*Survey on telecourse "Let's Talk Children."* Milwaukee: Wisconsin State College, (no date). 1955? (duplicated)

A postcard survey was accomplished on a one semester hour education course given in February 1955. There were 122 credit students and 283 non-credit viewers to the 30 minute weekly course. 113 credit students and 131 non-credit viewers returned the questionnaire. Non-credit viewers received a certificate of completion.

Breakdown of the questionnaire for the two groups:

		Parent	Teacher	Both parent and teacher
Non-Credit	Male	18	0	2
	Female	75	18	18
Credit	Male	0	0	6
	Female	28	53	26

Age Range	Under 20	20-30	30-40	40-50	Over 50	No response
Non-credit	2	27	36	34	7	0
Credit	2	22	32	36	13	6

Education	Grade	High	College Degree	College 1 yr	College 2yr	College 3yr	College Other
Non-credit	1	41	48	3	17	2	14
Credit	0	27	64				

On the question of which lecture was the most profitable, both non-credit and credit viewers were in agreement for their first two choices. On the question of other courses desired the following were given:

Non-credit		Credit	
Psychology	18	The child from 6 to 12	15
Art course	12	Science	12
Foreign language	9	Art	10
Understanding teen-agers	8	Music	9
All other choices five or less persons.		All other choices five or less persons.	

62--Tannenbaum, P. H. Instruction through television: A comparative study. Urbana: Institute of Communication Research, University of Illinois, June, 1956. (duplicated)

Method: Three one-hour lecture-demonstrations in periodontics were given to practicing dentists in six states during successive Mondays in March, 1956 by closed-circuit television. A fourth summary hour answering questions raised during the three previous hours was also given. Each dentist participating as students also received a supplementary manual. Programs were broadcast from Chicago by the University of Illinois College of Dentistry. Students viewed in central locations in six different cities.

In addition to the live TV group, three other groups of dentists were used. One group heard only the sound portion over a telephone hookup supplemented by film-strip visual aids. Another group studied only the manual. The third group saw a kinescope version approximately one month after the live series. All four programs were shown in one day to this last group. A group of dentists who were not exposed to the TV lessons or to the manual was used as a control group.

The live TV group was split into two parts for testing. One group of 160 dentists in four cities received a 35 item multiple choice examination after seeing the first three programs. The other group of 46 dentists in two cities was tested after the fourth hour to see if a summary hour would improve learning.

The telephone group was composed of 10 dentists, the manual only group had 12 dentists, the kinescope group had 40 dentists and the control group was composed of 138 dentists. A posttest only design was used.

It was found that the 35 item multiple choice test had eight items which were not covered either in the manual or in the telecasts, and that there were nine items covered only in the TV lessons.

Findings: Overall findings, using total scores on the 35 item test, were that each of the experimental groups did better than the control group. All differences using the "t" test with means were significantly different except for the comparison between the control group and the manual only group.

In further comparisons, it was found that the kinescope group did significantly better than any other mode of exposure, even doing significantly better than the two live TV groups. The live TV groups did significantly better than the manual only group. There were no significant differences in the following comparisons; telephone versus the manual only group, the live TV groups versus the telephone group and the three session live TV group versus the four session TV group.

In order to get some hint as to the comparability of all of the groups used, analysis was done using just those eight items which were not covered either in the telecasts or in the manual. No significant difference was found on these items thus supporting the assumption that the groups were more or less evenly matched as to initial ability. When the manual only group was compared with the control group on those items covered in the manual only, the manual group obtained a higher score but this difference was not significant. When the telephone, kinescope and the two live TV groups were compared with the control group using only those items which were actually covered in the manual or in the broadcasts, each group scored significantly better than the control group.

When the telephone, kinescope and the two live TV groups were compared with the manual only group using only those items which were covered in the manual, each of these groups scored significantly higher than the manual-only group. When the telephone group was compared with the three lecture TV group using items covered by the manual only, the television group scored higher but not significantly so. When one item which was covered in the manual but not in the television broadcast was removed, the TV group did significantly better. When these two groups were compared using only those items covered in the broadcast, the difference was not significant, with the telephone group scoring higher than the TV group.

In all comparisons, the kinescope group did significantly better than any other group. The author suggests that several reasons may account for this: (a) The possible initial superiority of the kinescope group. (b) Differences in size of screen. The TV groups viewed over 17" monitors while the kinescope group viewed on a theater-type screen. (c) Time differences. The TV groups were tested after the third or the fourth session which meant that either two weeks or three weeks had elapsed between time of initial exposure and time of testing. The kinescope group received the four hours of instruction in one day and were tested on the same day. (d) The possible novelty effect of kinescopes.

63--Tannenbaum, P. H. Instruction through television: An experimental study. Urbana, Ill.: Institute of Communications Research, University of Illinois, 1956 (duplicated)

Method: 356 students in a basic physiology course at the University of Illinois Medical School were split into two groups, equated on the basis of mid-term grades. 167 of these students received instruction through closed-circuit television while 189 students received the instruction in the normal way in a lecture hall but with the presence of TV cameras. Three 50-minute lectures on the human respiratory system were given on consecutive days. One week later, a 19-item multiple choice test based on the three lectures was given to all students without warning. Students in the course were composed of first and second year medical students, dentistry students and a few graduate students. TV students viewed the lecture in one lecture hall grouped around six television receivers.

Findings: Analysis of variance was accomplished to test whether differences could be found between the lecture and TV groups as a whole, whether the sub-groups--first and second year medical, dentistry and graduate students--differed among themselves, and whether an interaction existed between any sub-group and the mode of instruction--TV or live. The TV group was superior to the lecture group by comparisons of mean scores on the examination at the 7% level. Although this approaches but does not exceed the usual level of acceptance for significance, the author deems this close enough to raise some conjectures as to why there should be any superiority for TV. He suggests that novelty of TV may have spurred learning for the TV group. The author also attempted to test the hypothesis that proximity to the instructor should result in differential learning. He reasoned that TV viewers were "closer" than lecture students sitting in the rear of the lecture hall. Testing by groups, the author found that there was a hint that nearness to the lecturer was a factor in learning but results were not conclusive.

On a preference scale for TV instruction executed by the TV group only, a comparison of test scores between those favorable to TV instruction, those neutral, and those unfavorable revealed that both those who favored TV and those who were neutral did significantly better on the examination than those who were unfavorable. The difference between the favorables and the neutrals was not significant but showed a superiority for the favorable group.

64--Telecourses at Western Reserve University A summary report of the first three years -- 1951-54. Cleveland: Western Reserve University, (no date) (duplicated)

Report describes the television program for credit courses conducted over 4 years at Western Reserve University.

Courses telecast over a commercial station from 9-9:30 each weekday morning. Station donates time, facilities, and services of its personnel.

Administration: University Broadcasting Council has responsibility of radio and television activity. Dean of Cleveland College, adult education center of the University implements policies of the Council.

Production: Producer and director is head of the Dramatic Arts Department. Programs produced without rehearsal. Prior to each session, instructor hands producer a rough outline of what he expects to do.

Course Selection: Council selects courses to be offered.

Courses Presented: During 4 years the following credit courses have been offered--Comparative Literature, General Psychology, Fundamentals of Geography, Child Psychology, Economics of American Enterprise, Music Appreciation, Children's Theater, Biology, Argumentation, Modern and Contemporary Far East History, Introduction to Speech Correction, Living Theater, Introduction to Literature and Principles of Sociology.

Academic Credit: Students may register on either a credit or non-credit basis. Credit students are charged regular University tuition of $20 per credit hour and receive a copy of the syllabus, all of the homework assignments, and privilege of taking the final examination. In addition, credit students must submit regular written homework assignments and in certain instances one or more term papers. Text books may be purchased by mail through the university. Non-credit students pay a fee of two to five dollars and receive the course syllabus.

Financing: Series first underwritten by interested citizens and a foundation. So far, support has not been necessary from underwriters. These funds placed in a separate account for facilities and research. During first year, six courses given for 13 week periods, two running simultaneously. A seventh course given daily for six weeks in the summer session. Surplus of income approximately $2000.

In 1952-53, four courses given in pairs with time lengthened to 15 weeks to conform to regular University semester schedule. Four non-credit courses also offered. Deficit for the year approximately $1800. Since 1953, four credit courses given on a regular semester basis. Operation for 1953-54 academic year ended in defecit of $3000.

Normal expenses for a course--instructor's salary, production of the syllabus, publicity, some visual aids, mailing costs, a portion of the time of the executive secretary of the Council and a portion of the time of a secretary. Instructors receive additional compensation because of amount of time and effort required. This amounts to double credit for teaching. Instructor takes telecourses as overload or as part of his regular load.

Syllabus prepared by instructor and produced by University -- cost to student $2. Visual aids provided as needed by instructor--normally $100 budgeted for credit courses and $50 for short courses. Secretary at one-third time needed to handle details of registration, correspondence and telephone conversations with students, check of homework assignments, etc.

Registration: Students may register either by mail or in person.

Instruction: Instructors selected from regular University faculty upon invitation of Broadcasting Council and by arrangements with head of academic dept. involved. Some courses taught by single instructor, in others collaboration by several instructors carried out.

Audience: High proportion of students are women due to weekday morning time of presentation. Commercial surveys indicate 10,000 to 30,000 sets tuned daily to program.

Success of students: Out of 289 credit students registered for the 15 courses offered thus far, 209 have completed courses, 46 have withdrawn and 34 have received incompletes.

Research and evaluation: The University has conducted several surveys of their audience. In 1951, a comparison was made of academic records of campus and telestudents, for the introductory psychology course. On final examinations, in a standardized 110 item multiple choice test, median grade of television students was 13 points higher than campus students. Using curve created by classroom student grades, 24% of telecourse students would have received grades of A and no one would have failed.

In 1952, using a block sample technique stratified in accordance with four economic levels, 661 interviews conducted. In the areas selected, 47% of those who owned a television set claimed to know about the courses and approximately 15% of set owners listened to some proportion of the classes. Of those not watching, about 34% stated they could not view the courses because of the time of day at which they were presented. Age range of those claiming to have viewed the courses was from 19-68 years with a median of 37 years. Approximately 82% had completed high school and approximately 11% had completed college. About 11% of the total audience were men.

In 1953, 303 telephone calls to a random sample was carried out. In addition a sample of 71 telecourse viewers were interviewed intensively. Approximately 6,000 adults, it was found, viewed the programs daily. This represented 1.2% of families owning television sets and 20% of those who viewed any program at 9 a.m. Audience was composed mainly of women their average age being slightly less than 41 years. They had an average of about a year and a half of college education and their mates averaged about 3 years of college background. Compared with televiewers who stopped viewing, those who continued to watch had more education, their mates had more education, they had been away from the classroom for a shorter time, and they had fewer learning distractions at home. Economic status, size of family, children at home, age and initial motivation seemed to have little influence in determining how steadily a person viewed telecourses. It was found also that telecourse students prefer courses that are aids in everyday living.

In 1954, the sociology instructor took a sample of students viewing his course. Both credit and non-credit students were interviewed by telephone. Forty-four out of 77 non-credit and 12 out of 15 credit students were interviewed. The audience was composed primarily of married women with approximately 13½ to 14 years of schooling. Median age of credit students was 38 while median of non-credit was 48. Nearly 60% of credit students were enrolled in other courses at the University. Median length of time since last attending school was 25 years for non-credit students. Twenty-five per cent of credit group had viewed an earlier telecourse while 61.4% of non-credit students had watched.

Breakdown by courses:

	Credit			Non-Credit			Total		
	Total	Men	Wom.	Total	Men	Wom.	Total	Men	Wom.
Sept-Dec '51									
Comparative Literature	41	6	35	217	10	207	258	16	242
Psychology 101	70	11	59	451	17	434	521	28	493
Dec-March '52									
Geography 101	8	1	7	69	2	67	77	3	74
Psychology 230	21	1	20	155	6	149	176	7	169
Mar-June '52									
Economics 200	11	4	7	53	8	45	64	12	52
Music 213	15	2	13	123	9	114	138	11	127
Jun-July '52									
Dramatic Arts 445	11	1	10	60	1	59	71	2	69
Sep '52-Jan '53									
Biology 100	8	1	7	48	2	46	56	3	53
Speech 311	18	4	14	112	8	104	130	12	118
Feb-May '53									
History 339	22	8	14	119	6	113	141	14	127
Speech 308	11	0	11	220	14	206	231	14	217
Sep '53-Jan '54									
Dramatic Arts 223	12	0	12	247	12	235	259	12	247
Psychology 101	15	1	14	205	10	195	220	11	209
Feb-May '54									
English 251	11	2	9	74	3	71	85	5	80
Sociology 112	15	1	14	77	3	74	92	4	88

65--*Television in the classroom Report of a Canadian experiment November, 1954.* Canadian Broadcasting Corporation, 1954.

This pamphlet reports a pilot study of in-school telecasting on eight programs. Four of the programs were designed for the fifth and sixth grade level and the other four for grades seven and eight. All telecasts were beamed in November with 200 schools and 16 television stations participating.

The programs were produced as kinescopes using where possible, professional actors. Titles of the programs for the fifth and sixth graders were: How Columbus Navigated, Look Alert--Stay Unhurt!, Surface Patterns (art), and Starbuck Valley Winter (dramatization of a children's book). Titles of the seventh and eighth grade programs were: House of History, Iron from the North, Save Our Soil, and Current Events. Special manuals were prepared for distribution to teachers as a teaching aid.

Evaluation was accomplished by the use of a questionnaire designed to get teachers' reactions to each program. In all, 513 classes were involved with 17,823 pupils. Of this number, there were 287 fifth and sixth grade classes with 10,101 pupils and 226 seventh and eighth grade classes with 7,722 pupils. 513 teachers from 205 schools returned evaluation forms.

On the value of school telecasts as a teaching aid, 32% of the teachers rated this value as high, 62% rated it as medium and 6% rated it as low. On suggestions for future of classroom television, 28% of the teachers requested a regular schedule of school telecasts, 65% asked for a further experiment, and 7% said that school telecasts should be dropped.

Under suggestions for improvement, the following points were brought up by teachers:

1. Programs should be closely related to the curriculum and should present material the teacher cannot easily duplicate.

2. There should be very careful planning in close consultation with teachers.

3. Programs should be opened with a questionnaire to stimulate interest. Teaching points should be repeated, with review at end of program.

4. Programs should be personal, with greater class participation (e.g. having narrator direct questions to viewers).

5. Programs should include illustrations and action with a minimum of talking.

6. Minimum length of programs should be twenty minutes.

7. Narrators should have pleasing personalities. Their role should be reduced to a minimum. Teachers familiar with the grade level should be used.

8. Programs should be shown every second week to allow time for follow-up work.

9. Detailed information should be provided teachers well in advance.

No attempt to get at pupil reactions was made. No test or evaluation of information and knowledge gained was attempted.

66--Ulrich, J. H. An experimental study of the acquisition of information from three types of recorded television presentations. Dissertation Abstracts, 1955, 15, 2346.

Method: Object of the experiment was to find out whether eighth graders retained more by a kinescope of a straight lecture, of the same lecture with visual aids handled by the lecturer, or of the same lecture with visual aids flashed on the screen. The topic chosen was "Food Resources of Africa." The TV lecture was based on 19 test items which discriminated between those who knew the materials and those who did not.

Three kinescopes were made with lecture content and words identical, varying only in the manner of presentation. A sample of 40 eighth grade classes in the Chicago school system was picked. Each of the classes were assigned randomly to four groups, the three experimental treatments and one control. Tests were administered immediately after viewing to the experimental groups. A retention test containing the same items was given 30 days later.

Findings: Analysis of variance revealed significant differences among the four groups on both the immediate and delayed tests. All three experimental groups did better than the control group for both tests.

There was a significant difference among the three experimental groups on the immediate posttest but not on the delayed test. The straight lecture version was significantly different in comparison with each of the visual aids versions in favor of the latter groups. There was no difference between the two visual aids versions. These differences were erased on the delayed test.

67--Vernon, M. D. Perception and understanding of instructional television programmes. British Journal of Psychology, 1953, 44, 116-126.

Method: A pilot study on learning and interest was conducted with three series of television programs.

A. Five one-half hour talks on modern building and town planning.
B. Two one-half hour talks on contemporary political and international affairs.
C. One 40-minute talk on the effects of extreme heat and cold on the human body.

Films of the televised programs were shown to:

1. WEA (?) students (nearly all women of about 40--grammar school but no university schooling), RAF men, and girls from the sixth form of grammar schools. These three groups saw three programs from series A.
2. University students mostly in psychology. These saw both the B and C series above.

Small groups of not more than 10 or 11 at a time were invited to observe the programs. They were told that they would be asked to write down a brief account of what they remembered immediately after seeing the program. After the written reports, subjects were asked what features impressed and interested them most, and what bored them. 76 reports were obtained on the A series, 12 on the B, and 11 on the C. For analysis purposes, each program was broken up into what appeared to be the principal points and each subject was scored for the points remembered.

Findings: For series A, the WEA (older women's) group and the sixth form girls were generally quite accurate in their unaided recall of items. 75% of the WEA group and 60% of the sixth form group were accurate in their recall of points. The RAF group obtained 51% accuracy. Motivation was low with this group, the author says, and there was rather desultory viewing. The university students viewing series B and C were also quite accurate. The recall for series B was 70% and for series C, 76%.

On answers to impressiveness, it was found that the best "impression of reality" arose when there was considerable movement. These were mainly in the film excerpts. Static scenes were considered less convincing. Least convincing and impressive were still photos and pictures. However, diagrams, maps, and other "symbolic" material were quite effective in arousing interest.

It was found on recall that important statements and generalizations were less likely to be remembered if they occurred near the end of the program. Also, the more discussion there was in the program, the less accurate was recall. If learning is to occur at an optimum rate, the author says that one commentator giving facts and statements in a straightforward manner is probably best.

8--Wallen, R. W. Teaching psychology by television. *School & Society*, 1952, *75*, 133-134.

Personal reactions by a Western Reserve University professor on performing as an instructor of psychology on television.

Author maintains that effective TV teaching of credit courses is essentially the same as effective college teaching. It offers satisfactions to the instructor in lieu of the questions of the class, laughter during discussion and earnest questions after class dismissal. TV teaching rewards the instructor by his realization that instead of reaching a few, he is reaching thousands. Mail reactions give satisfaction that people really are watching.

Feedback from a live audience is lacking to the TV instructor; however, author claims that enough feedback exists from technicians in the studio. Reactions from these people can be used as cues to the instructor's effectiveness.

Time demands present problems to an instructor. Author says he overcame this by covering fewer topics and trying to make only a few points well.

The topics to be covered were chosen by the author which were basic and general in preference to those that were enriching but often more specific or unusual.

Author says that teaching over TV does not require a change in teaching techniques although there is a need to acquire certain deliberation about changes in body position. He says that one is expected to be a teacher on TV and not anything else and that it is a mistake to try to play a new role just because one is teaching on TV.

There is more freedom in use of visual materials and demonstrations on TV in comparison to classroom instruction. A display as small as three by four inches, he says, can be enlarged quite clearly by the cameras.

69--Williams, D. C. Mass media and learning--An experiment. Explorations, No. 3, 1954, 75-82.

Method: 108 undergraduates at the University of Toronto were divided into four groups such that each group contained an equal number of high, average, and low students. Each of these audiences were arbitrarily assigned to a medium--lecture, TV, radio, and reading mimeographed copies of the lecture. The subject matter was "Thinking Through Language," a subject unfamiliar to the students. The same lecturer simultaneously gave his talk to the lecture, TV, and radio groups. The reading group read the talk at the same time. In order to put some control on the reading group to compensate for lack of sound and/or sight, key words in the reading material were capitalized to approximate the emphasis given in the lecture. The lecture group was in the transmitting room for the TV and radio broadcasts. An examination consisting of 19 multiple-choice questions and an essay type question to be answered in 200-300 words was administered immediately after exposure as a measure of learning.

Findings: Analysis of variance and "t" tests were run only on the multiple choice part of the examination. Analysis of variance showed that media used makes a significant difference in the amount learned. Generally, TV was superior to radio (significant beyond the 1% level), radio was superior to reading (significant beyond the 5% level) and there was no significant difference between reading and the lecture audience. Looking at the scores by academic ability (high, average and low), the same rank order of media held for the TV, radio and reading groups--TV highest followed by radio and then by reading. The lecture group was last in amount learned among the low and high groups but was as high as TV for the average group. The author points out that the lecture group was not a true lecture group in the sense that ordinary classroom procedures were carried out but that this group should be more correctly termed the studio group with its attendant distractions of lights and equipment for broadcasting.

Among the three academic ability groups, the TV low ability group did as well as the average radio group. The largest difference occurs in the high ability group where the TV group is much superior to the radio and reading groups.

(See Paul, J. & Ogilvie, J. C. Mass media and retention. *Explorations*, No. 4, 1955, 120-122, for follow-up study on retention)

0--Willis, B. C. *Evaluation report of the two week experiment of direct teaching on television*. Chicago: Chicago Public Schools, 1956. (duplicated)

A preliminary report on two ten lesson series in algebra and physics given to students in 34 Chicago high schools over station WTTW during the last two weeks in May, 1956.

Method: Ten lessons of a unit for quadratics and ten lessons on a unit on machines were presented daily to students. Although 34 schools were involved altogether, this preliminary evaluation was limited to 19 schools in algebra and 24 schools in physics which had regular classes receiving the same units of instruction without television. The number of students involved for evaluation purposes is not given in this report.

Instructors, whose classes were viewing the lessons on TV, sent in postcards daily. After the tenth session, these instructors were asked to fill out an evaluation questionnaire. On the next class day after the tenth session, examinations were given to both TV and non-TV students in both courses. Evidently a weekend intervened between the last TV program and the time of testing. Type of test given is not mentioned. TV students also filled out a questionnaire on their attitudes toward television.

The examination had items which were not covered during the TV lectures but had been taught previously in the semester as well as items covering the ten TV lessons. Those items which covered previous material were used to compare the TV versus the non-TV group in terms of initial knowledge.

Findings: There were no significant differences between TV and non-TV students in both algebra and physics. The scores adjusted for ability level of the TV and non-TV groups do show that the TV students in both courses did slightly better than the regular classroom students. Pointing out that this difference is not statistically significant, the report reverses itself by stating that "it seems possible to conclude that classroom instruction plus television is slightly more effective than the instruction in the regular classroom."

Teachers reported in their questionnaires that the algebra instruction was excellent or superior. The overall impression was that television instruction was less effective than the regular classroom presentation. Teachers reporting on the physics series found the instruction either superior or excellent. They also felt, however that too much material was covered and the lessons on the whole were comparatively difficult. As with the algebra teachers, they felt instruction by television was less effective than regular classroom instruction.

Student evaluation for both physics and algebra was that too much material was presented in each television lesson. They thought, however, that repetition of key points at the end of the lesson was most helpful to them. They also felt that TV lessons were most effective when followed by discussion afterwards with the class teacher.

71--Wilson, M. C. & Moe, E. O. Effectiveness of television in teaching sewing practices. Extension Service Circular 466, U. S. Extension Service, 1951.

Personal interviews were held with a sample of women who had been exposed to an eleven program series of 12 minutes each on aids to sewing. Name of the series was Let's Make a Dress. Respondents were selected from 974 Washington, D. C. women who had requested a bulletin offered free on two afternoon TV programs announcing the dress series. 251 interviews were made.

It was found that a high proportion of women viewed the programs. Nine out of 10 saw at least one in the series; eight in 10 saw the first program, six in 10 saw the second; and five in 10 saw the third. After three programs, the audience for the remainder of the series remained about one-third of the total audience. For all 11 programs, the number of viewers in the sample was 40%.

A high proportion of the viewers were young mothers and mothers of young children. More than one-half were under 35, seven out of eight were under 45. Eight out of 10 had children under 18 at home and six out of 10 were mothers of children less than six years of age. Nine out of 10 had attended high school or college.

Seven out of 10 missed some programs because of the press of other activities such as taking care of the children, housework, and shopping.

There was extensive use of new knowledge within a five week period immediately following the series. Seven out of eight said that they had learned new things. Eight out of 10 said the series helped with things that they most needed. Nearly half actually used one of the practices taught.

Use of practices taught in the series increased as more programs were watched. 31.6% of the women who saw one to three programs used the practices, 50% of the women who saw four to six, and 59.4% of those who saw seven to 11 programs used the practices.

Almost all (97.4%) of the viewers examined the bulletin which was distributed free. Four in 10 studied it carefully. Five out of 10 looked at the illustrations and read some of the print.

A definite majority (84%) thought the 12 minute programs were too short. None of them thought it was too long. 70% of the viewers wanted twice a week presentations instead of the once a week carried out during the series.

APPENDIX A

ADDITIONAL READINGS

A. General Works

1. Callahan, Jennie W. *Television in school, college, and community.* New York: McGraw-Hill, 1953.

   A textbook on educational television--the establishment of a station, programming, and writing-production techniques.

2. Cumming, W. K. *This is educational television.* Ann Arbor, Mich.: Edwards Brothers, Inc., 1954.

   A rather comprehensive overview of the state of educational television as of 1954. Includes chapters on educational TV on commercial stations, development of noncommercial stations, teaching through television, closed-circuit, administrative problems and others.

3. Levenson, W. B. & Stasheff, E. *Teaching through radio and television.* (Rev. ed.) New York: Rinehart, 1952.

   Text for teachers in preparing for educational radio or television. First two chapters present a history and development of educational uses of radio and television.

4. Siepmann, C. A. *Television and education in the United States.* Paris: UNESCO, 1952.

   A review, now somewhat dated, of educational television activities in the United States. Findings of research and case studies included.

5. Wylie, M. *Clear channels.* New York: Funk & Wagnalls, 1955.

   One man's view on the impact and effect of television. See especially chapters 5, 6, 9, 10 and 11 for comment pertinent to educational television.

B. Bibliographies

6. Adams, J. S. *A selected bibliography of research in television.* Chapel Hill, N. C.: Univ. of North Carolina School of Journalism, 1955. (Duplicated)

"...limited largely to research reports bearing on the effects of television on audience behavior, on the characteristics of audiences, and on the distribution of television in the population."

7. Broderick, Gertrude G. Radio and television bibliography. Washington, D. C.: Office of Education, Dept. of Health, Education and Welfare, Bulletin No. 2, 1956.

   A revised list of an annotated bibliography made in 1952. A section is included on educational uses of audio-visual, radio and television. Very few titles on television.

8. Crile, Lucinda. Review of extension research. Published annually. U. S. Department of Agriculture, Extension Service Circular.

   Annual review of research which includes television studies pertinent to extension work. Most recent reviews are Extension Service Circular 497, February 1955, and Extension Service Circular 506, May 1956.

9. Crile, Lucinda. Some findings from television studies. U. S. Dept. of Agriculture, Extension Service Circular 490-1953. (Duplicated)

   Abstracts of research articles on television which have some relationship to extension work.

10. Rose, O. (ed.) Radio broadcasting and television An annotated bibliography. New York: H. W. Wilson Co., 1947.

11. Suggested references in educational television. Washington, D. C.: Joint Committee on Educational Television, October, 1954.

C. Whole Issues of Periodicals Devoted to Educational Television

12. American Psychologist, 1955, 10, October issue.

13. Educational television--special number. Higher Education, 1951, 7, No. 15.

    Eleven short articles on the state of educational television.

14. Fletcher, L. C. Education through television. ETRA Research Bulletin, 1956, whole spring issue.

    An overview of educational television including a brief history, stations in operation, subject matter categorization, and review of research.

15. Hudson, R. B. (issue editor). Adult education and mass communications. Adult Education, March, 1953.

D. Periodical Publications Devoted to Educational TV

16. Committee on TV, American Council on Education. Educational television newsletter.

17. Education on the air. Yearbooks of the Institute for Education by Radio and Television, Ohio State University, Columbus.

18. Joint Committee on Educational Television, 1785 Massachusetts Ave., N. W., Washington, D. C. Factsheet and box score.

19. National Association of Educational Broadcasters. Educational television research Fact sheet service. 14 Gregory Hall, Urbana, Ill.

20. Nationally televised programs of educational nature. Washington D. C.: Television Information Committee, Nat'l. Assoc. of Radio and Television Broadcasters, published yearly.

**Educational Television and Radio Center, Washtenaw Avenue, Ann Arbor, Michigan. N.E.T. News

E. Reports of Conferences, Seminars and Special Committees

21. Anderson, R. C. (ed.) Regional cooperation in educational television. Atlanta, Ga.: Southern Regional Education Board, 1952.

22. Campion, H. A. Closed-circuit television for instructional purposes in Los Angeles junior colleges. Los Angeles: Division of Extension and Higher Education, Los Angeles City Board of Education, June 4, 1956. (duplicated)

A proposal for an experiment in Los Angeles for educational television in the Los Angeles City Junior Colleges.

23. Credit courses by television, Washington, D. C.: American Council on Education, 1955.

Report of a conference held at the Kellogg Center, East Lansing, Mich. presented in transcript style. Discussions included topics such as administration and organization of courses, production and performance, costs, revenues, enrollment, evaluation in terms of campus courses, examination procedures and policy matters.

24. Dartmouth Television Committee. A faculty committee looks at educational television. Educational Record. October, 1954, 293-304.

**Editor's addition

A condensed version of a Dartmouth college committee report investigating the feasibility of television activity at Dartmouth. Recommendation--to activate a channel for educational courses for the following reasons: (a) for curricular use, (b) for study purposes as an adjunct to classroom instruction in much the same way that the library is, (c) for extracurricular use to augment the free time activity of the Dartmouth community. Cost estimates of activating an UHF channel are listed.

25. *Development of telecourses at Michigan State College.* East Lansing, Mich.: Continuing Education Service, Michigan State University, (no date). (duplicated)

Brief description of the organizational structure of educational telecasting at the university. Includes summary descriptions of credit courses televised in 1953 and 1954.

26. *Educational television.* St. Paul: Minnesota Legislative Research Committee, Publication 64, 1954.

27. *Educational Television in Florida.* Tallahassee: Florida Select Committee on Educational Television, 1954. (Report to the Legislative Council)

28. *Educational television in Ohio.* Columbus, O.: Ohio Legislative Service Commission, Research Report No. 7, March, 1955.

29. *Educational television for New Hampshire.* Concord, N. H.: Commission on Educational Television, State of New Hampshire, May 7, 1956.

30. *The Governor's conference on educational television.* Dept. of Education, State of California, Sacramento, 1953.

31. Isaacson, C. L. & Walters, R. L. *Educational television report Number one.* Pocatello Idaho: Idaho State College, May 1, 1956. (duplicated)

Progress report on activities of Idaho State College in closed-circuit television. Service inaugurated in February, 1956.

32. Newsom, C. V. (ed.) *A television policy for education.* Washington, D. C.: American Council on Education, 1952.

Report of the proceedings of the Television Programs Institute. Includes text of ten addresses, report of two panel discussions presented in transcript form and ends with 12 short working papers.

33. Paulu, B. (ed.) *Lincoln Lodge Seminar on Educational Television Proceedings.*

Urbana, Ill.: National Association of Educational Broadcasters, 1953.

Report of a conference which considered three areas: the role of educational television stations; the nature and needs of the television audiences; and the resources from which educational television programs may be developed to meet these needs. Includes papers by H. D. Lasswell, Donald Horton, Edgar Dale, L. H. Adolfson, W. B. Levenson, and Dale B. Harris as well as five committee reports.

34. A program for educational television in New Jersey. Trenton: New Jersey Commission on Educational Television, Second Report, 1954.

35. Questions on using television for the public schools. Results of the first ETRA conference. ETRA Research Bulletin, No. 2, March, 1955.

Results of a conference held in January, 1955 at Berkeley. Questions taken up were the effectiveness of TV for teaching, potentialities of classroom use of TV, low power transmitters for school districts, TV's effect on health, TV's effect on family life, TV's use with shut-ins, administrative problems of TV use by public schools, etc. Full conference transcript available on short term loan from Educational Television Research Association headquarters, San Leandro, Calif.

36. Report of the all college committee on television courses for credit. East Lansing, Mich.: Continuing Education Service, Michigan State University, (no date). (duplicated)

A policy report on college credit courses over television at Michigan State University. Recommendations: that the university adopt a conservative policy with regard to television credit until more evidence is in; that amount of credit to be allowed in a degree program be considered along with how much credit can be allowed through correspondence or extension; that resident students be allowed to enroll in TV courses only after permission of the student's dean; that no TV courses be allowed for credit not listed in the college catalogue; that TV students meet all requirements to which resident students are held; that TV students come to the campus for examinations.

37. Report of the New York state temporary study committee on educational television. Albany, N. Y.: State Education Dept., January, 1956. (duplicated)

38. Southern Regional Education Board. *Educational television project. Two year report.* Atlanta, Ga.: 881 Peachtree St., N. E. (no date) (duplicated)

39. Southern Regional Education Board. *Work conference on program planning and development for educational television.* Atlanta, Ga.: 881 Peachtree St., N. E., March 10-12, 1955. (duplicated)

40. *State governments and educational television.* Springfield, Ill.: Illinois Legislative Council, Publication 123, January, 1956.

41. *Symposium on television training and training research.* Port Washington, L.I., N. Y.: Special Devices Center, The Joint Panel on Training and Training Devices, Committee on Human Resources, Research and Development Board, 10-11 December, 1952.

42. *Teaching by closed-circuit television.* Report of a conference held in Iowa City. Washington, D. C.: Committee on Television, American Council on Education, 1956.

    Report of a conference held in Iowa City, Iowa presented in transcript form. Includes reports of activities from various universities, quizzing of a panel of teachers and students who participated in an Iowa study in political science, and discussion of techniques and problems for further research.

43. *Television in our schools.* Washington, D. C.: Joint Committee on Educational Television, Aug. 8, 1955.

    Report of a seminar on in-school telecasting presented in transcript style. Subjects include such topics as enrichment of the curriculum, in-service teacher training, public relations programs for parents, administrative problems, effectiveness of telecasts, potentialities of telecasts as a partial solution in alleviating increasing enrollments.

44. *Two years of progress in educational television.* Washington, D. C.: Joint Committee on Educational Television, 1954.

45. University of Chicago Committee on Educational Television. Television and the university. *School Review*, 1953, 202-225. (from offprint)

    An abbreviated version of the Chicago report originally prepared to guide University of Chicago policy in participating with other agencies to secure channel 11 for the city of Chicago.

F. *Annual Reports*

46. *Annual Report of the Radio Television Department.* University of Miami, Coral Gables, Fla.

47. *Annual report of TV utilization committee 1955-56.* New York: Metropolitan School Study Council, June 1, 1956. (duplicated)

48. Gable, Martha A. *Report of radio-television activities.* Philadelphia: Board of Public Education, School District of Philadelphia, Sept., 1954

49. Gotwalt, Helen M. *Annual Report 1955-1956 radio-television.* York, Pa.: York City Schools, 1956. (duplicated)

50. Kane, Eleanora Bowling & Annan, Clara L. *Baltimore Public Schools report of radio and television activities for 1955-56.* Baltimore: Baltimore Public Schools, 1956. (duplicated)

51. Long, Madeline S. *Radio and Television Education.* Minneapolis Public Schools, Minn.

52. Reardon, Anna Joyce. *Report of television programming committee.* Greensboro, N. C.: Woman's College, University of North Carolina, May 15, 1956. (duplicated)

    Review of television activities including telecourses during 1955-1956. Programs broadcast over WUNC, Chapel Hill.

53. *Report of radio and television activities for 1954-1955.* Baltimore: Baltimore Public Schools, 1955. (duplicated) (annual report)

G. *Discussions Pro and Con, and Advice*

54. Bannerman, LeR. Entertainment to educate. *Quarterly Journal of Speech,* 1956, *42*, 170-172.

    The question of entertainment in educational television is often confused by equating entertainment with amusement. The treatment of content is as important in educational TV as quality to attain success. Entertainment means the treatment of content in such a manner as to hit viewer interest.

55. Bolling, R. W. Elements of educational television. *Education*, 1955, *75*, 659-663.

    Personal opinion on how to improve ETU programs.

56. Brownell, S. M. Education looks at radio and television. School Life, 1955, 37, No. 4. (from offprint)

The U. S. Commissioner of Education weighs the merits of educational radio and television.

57. Carpenter, C. R. & Greenhill, L. P. Closed circuit TV is one answer. College and University Business, February, 1956.

A popularized article based on the author's Report Number one: An Investigation of closed circuit television for teaching university courses. (See abstract)

58. Chiapetta, M. From TVA to TVU. School and Society, 1956, 83, 75-78.

A critical note on education by TV from a faculty member of Pennsylvania State University.

59. Draper, B. Science education through television. Bulletin National Association of Secondary School Principals, 1953, 37, No. 191, 149-155.

Discusses unique advantages of television in teaching science. Close-ups give a sense of intimate participation through the televising of such things as microscope views, use of animals, magnification of intricate details.

60. Dunham, F. Comparative uses of television in education. Chicago Schools Journal, 1950, 31, 208-212.

Article weighs advantages and disadvantages of television as compared with radio teaching.

61. Dunham, F. How educational can educational television be? School Life, 1955, 37, No. 6. (from offprint)

The chief of Radio-Television, U. S. Office of Education categorizes the types of programs which can serve education. He raises certain questions which should be answered in order to assess the value of educational television broadcasts.

62. Emphasizing educational television. Ann Arbor, Mich.: Educational Television and Radio Center, 1956.

A collection of reprints of seven speeches and articles exploring the future of educational television.

Includes articles by David D. Henry, George D. Stoddard, Franklin Dunham, H. K. Newburn, Leland Hazard, Raymond Wittcoff and Huston Smith.

63. Eurich, A. C. We have teachers enough--right now! *Farm Journal*, March, 1956. Reprinted by RCA, Camden, N. J.

The director of the Fund for Adult Education plugs television as a means for solving the teacher shortage.

64. Hennock, Frieda. Learning English the hard way. *Elementary English*, 1954, *31*, 218-222.

Speech on potentialities of ETV as well as brief resume of events surrounding reservation of ETU channels by FCC.

65. Home economics and educational television. *Journal of Home Economics*, 1955, *47*, 759.

Statement of beliefs by the TV committee of the School of Home Economics, Woman's College, University of North Carolina to guide programming policy for home economics courses on television.

66. Lagler, K. F. *Biological science television*. The Biologist, 1953, *35*, 161-164.

Thoughts on the future of teaching science via TV after personal experience. Author states that out of 18 courses offered on the Michigan Television Hour, 10 were science subjects and that six of these 10 had something to do with biology.

67. Leevy, J. R. Sociology programs for television. *Sociology and Social Research*, 1955, *39*, 248-253.

Proposed TV program for any sociology department contemplating teaching over television. Article outlines a series program by program.

68. Levin, Betty. Television and the schools. *Harvard Educational Review*, 1950, *20*, 255-270.

A critical analysis of the philosophy of educational television and television in general and its possible threat to democratic ideals.

69. Lyon, D. W. ABC'c of commercial TV for educators. Educational Screen, 1954, 33, 20-21.

Advice to educators planning to use commercial TV for telecasting.

70. Mabley, J. What educational TV offers you. New York: Public Affairs Pamphlets, Pamphlet No. 203, 1954.

A television and radio critic assesses educational television and gives reasons for mustering public support behind it.

71. McCoy, E. P. Education for TV or TV for education? Educational Screen, 1954, 33, 280-281.

Points out danger of exploiting education (and educators) for sake of TV instead of exploiting TV for education.

72. Mercer, J. & Becker, S. The disenchantments of educational TV. Audio-Visual Communication Review, 1955, 3, 173-182.

A discussion of some of the roadblocks in the path of an adequate educational TV program. Authors discuss lack of feedback, high costs, the impossibility of replacing or solving the teacher shortage when so many subject matter areas need teachers, the difficulties of in-school viewing, shortages of trained personnel, lack of adequate research and evaluation, problems of programming, etc.

73. Morehead, H. Television--and learning. Educational Leadership, 1955, 13, 167-171.

Author raises some questions to be used as guides in assessing the value of educational television. In general, is quite favorable to educational television.

74. Miller, J. The commercial broadcaster views educational television. (Excerpts from a speech given at Georgetown University) Washington, D. C.: National Association of Radio and Television Broadcasters, 1952. (duplicated)

The Chairman of the Board and General Counsel for NARTB gives his ideas on the place of educational television. States some of the beliefs of commercial broadcasters regarding educational television and educational television stations.

75. Pinson, Penelope. Can classroom television solve the teacher shortage? Parents', March, 1956, 31, 36-37, 130-131.

A popularized article reporting the author's impressions after viewing educational television attempts in Pittsburgh public schools and NYU.

76. Sherburne, E. G. Jr. Color television and educational TV. Audio-Visual Communication Review, 1954, 2, 208-215.

Questions and answers on pertinent points about color television and the ramifications of the development of color for educational TV. Conclusion is that there is doubt that color will increase the effectiveness of educational television except in certain specialized areas such as art and medicine.

77. Shurtz, R. R. & Alinsky, J. W. A plan for centralized audio-visual facilities for educational institutions. Audio-Visual Guide, March, 1956. (from offprint)

Presentation of a plan for integrated audio-visual service in schools, utilizing closed-circuit television.

78. Skornia, H. J. What can you do about educational television? Audio-Visual Communication Review, 1955, 3, 83-90.

A plea for a hard look at the potentialities of educational television and for the development of knowledge about these potentialities so that ETV will not be killed.

79. Steinberg, C. S. Exclusive television channels for education. Dissertation Abstracts, 1955, 15, 1217-1218.

Discussion of channel reservations, FCC policy and educators' problems in connection with educational television.

80. Udell, G. What do we need to know about CC-TV? Journal of AERT, 1956, 15, No. 4, 3-9.

Explanatory and descriptive article on closed circuit for use in education.

81. Willey, R. R. & Van Bortel, F. J. A conceptual framework for programming educational television. Audio-Visual Communication Review, 1953, 1, 252-260.

A scheme for guiding programming policy for educational television stations. The two dimensions to be considered are viewer participation and personal involvement. A graphic categorization of various aspects of these two dimensions is presented.

82. Willey, R. R. & Van Bortel, F. J. Educational TV and community service. Audio-Visual Communication Review, 1954, 2, 118-120.

Citing of advantages of educational television. Authors say these lie in presentation of authenticity, promotion of community integration and the ability to follow through on various topics.

83. Will we use TV for education? Wisconsin Journal of Education, 1954, 87, No. 1, 16-19.

Arguments and testimonials mustered in support of a referendum on whether there will be a state non-commercial educational TV network. (Referendum later defeated)

84. Witt, P. W. F. Television in school? Not until the teachers are convinced! Journal of AERT, 1955, 14, 6-13.

Columbia Teachers College professor cites the need for acquainting teachers with the potentialities and uses of television in order to make them supporters.

H. Descriptions of Courses Taught, Special Techniques Used

85. Ambrosino, M. J. The Schenectady experiment. School Executive, July, 1956. (from offprint_

Report of a pilot study in closed-circuit television in the Schenectady public school system to lay the groundwork for extensive programming in the fall of 1956. Mathematics, conversational French and English were telecast, as well as some preliminary work with chemistry.

86. Byrne, C. T., Imel, K. S. & Burgert, R. H. TV classroom for adults. NEA Journal, 1956, 45, 214-215.

Describes "TV Classroom" sponsored by the San Diego city schools for adult education. Series is in fourth year. All courses yield regular high school credit--one-half unit for 10 on-half hour lessons. Courses have included such subjects as art, music, interior decorating, clothing and millinery, gardening, first aid, history and

government, grammar, child and family psychology, meteorology, oceanography, photography and conversational Spanish. Cost of series has been about $4000 to $5000 a year. A commercial station donates the time three mornings a week, one-half hour each session.

87. Cumming, W. K. Television at Stephens college. Columbia, Missouri, (no date). (duplicated)

Use of closed circuit TV at Stephens. Describes the use of industrial type TV to provide an interdivisional course for first year students.

88. Gable, Martha. Viewer's views on classroom TV. Educational Screen, 1951, 30, 226-227.

Popular report of a survey in Philadelphia on in-school viewing. There was overwhelming support by teachers for TV as a teaching aid. Quite a few parents followed the in-school programs regularly.

89. Greenhill, L. P., Carpenter, C. R. & Ray, W. S. Further studies of the use of television for university teaching. Audio-Visual Communication Review, (in press)

A review of courses telecast by closed-circuit at Penn State in 1955 and 1956. Includes results of the 1955 studies. (See abstracts for fuller report)

90. McIntyre, C. J. & Greenhill, L. P. The role of closed-circuit television in university resident instruction. American Psychologist, 1955, 10, 598-601.

Further discussion of closed-circuit work at Penn State. Includes a consideration of various methods of altering the lecture method to fit TV in such a way that some of the obstacles to student participation and interaction can be overcome. Also considers cost, installation, maintenance and operation of closed-circuit equipment.

91. Pierce, R. L. The professors go on TV. Campus Copy, (Purdue University) 1956, 8, No. 4, 4-5, 10.

Describes closed-circuit experiments at Purdue University.

92. Stromberg, E. L., A demonstration of 'subjective' colors on television. American Journal of Psychology, 1953, 66, 636-637.

Demonstration in psych course of rotating black and white discs. On TV, some saw colors--inner circle red, outer circle blue. When rotated rapidly (still in clockwise direction) TV image reverses. Inner blue and outer red. Demonstration repeated twice, once for 100 people on six monitors and second time on open telecast.

93. TV Camera as study hall monitor. School and Society, 1956, 84, 12.

Report of the use of closed circuit television as a monitor to relieve teachers of non-teaching duties in the study hall in the New London, Wisc. high school. Pupil acceptance reported. Superintendent estimates savine of one-half of teacher's annual salary since time saved can be used for classroom instruction.

94. TV comes to the Miami classroom. The Miami Alumnus, 1956, 9, No. 6, 4-5.

Description of an experimental program conducted during the second semester 1956. Supported by a $135,600 grant, the study sought to evaluate procedures for teaching a larger number of students. Closed circuit television was used to telecast courses in physiology, zoology, sociology, and educational sociology.

I. Personal Experiences in Teaching by TV

95. Anderson, G. R. Teaching the slide rule via television. The Mathematics Teacher, 1950, 43, 272-274.

Personal experiences in teaching a telecourse. Author taught six programs of 15 minutes each over WGAL-TV, Lancaster, Pa., sponsored by Millersville State Teachers College.

96. Barg, Bess. The science telecast in the classroom. Education, 1953, 74, 88-95.

Radio television assistant of Philadelphia public schools comments on value of in-school TV.

97. Barnes, M. W. Thousands study creative crafts through television. The Nation's Schools, July, 1953, 52, 86-88, 90.

Report on Oklahoma City public school telecasts. Presented a 36 series program on Saturday mornings receiving as high as 300 letters weekly.

98. Bolling, R. W. TV teaches reading skills. Educational Screen, 1955, 34, 339-341.

Description of a speed reading course given over a Mesa Arizona station sponsored by Arizona State College. A 13 week series was given using such things as tachistoscopic presentations to increase speed. Course time was switched in the middle of the series so that progress could not be checked very easily.

99. Brawley, H. M. AV telecourse. Educational Screen, 1950, 35, 54-55.

Description of a telecourse, Audio-Visual Education, given in the spring semester, 1955, by Morris Harvey College in West Virginia. Of 103 who registered for credit, 97 satisfactorily finished the course. Six of these did outstanding work and got "A" grades. Three on-campus meetings were held, the last one being for purposes of a final examination. Seventeen one-hour telecasts were given for three credits. A schedule of telecasts and titles of each lesson are included in the article.

100. Brawley, H. M. Education by radio and television in West Virginia. West Virginia School Journal, October, 1955. (from offprint)

Progress report on radio and television credit course activities at Morris Harvey College and WCHS-TV. The first two telecourses, World Geography and Audio-Visual Education, drew 71 and 103 credit students. Courses given in 1955 were Play Direction and Play Production.

101. Brawley, H. M. Radio classroom paves way into TV sessions. West Virginia School Journal. September, 1954. (from offprint)

Report of efforts of Morris Harvey College and WCHS-TV, Charleston, in putting on Television Classroom. The TV courses are an outgrowth of Radio Classroom, a series of credit courses over radio. World Geography and Audi-Visual Education first two offerings over Television Classroom.

102. Burt, R. O. So you're going to teach in their living rooms. Peoria, Ill.: Peoria Public Schools, 1954. (duplicated)

Brochure to guide teachers participating in presenting various facets of the Peoria public schools to parents and the public. Outlines in detailed fashion how to perform with classes in front of TV cameras.

103. Carlson, F. E. Television and forestry. Journal of Forestry, 1953, 51, 715-519.

A discussion of the uses of television for programs on forestry. Gives advice on the preparation of a TV program from personal experience.

104. Carlson, F. E. Forestry via television. Forest Club Quarterly (University of Washington), 1950-51, 24, No. 2, 10-14.

A history of telecasting forestry subjects by a professor at the New York State College of Forestry. First College of Forestry telecast--May 22, 1946.

105. Davis, Sarah W. Adult education telecasts in Baltimore. Adult Education, 1951, 2, 24-26.

Supervisor of parent education in Baltimore describes her experiences in telecasting 20 15-minute programs in April and May, 1951. Analysis of some of the volunteer mail comments are given.

106. Evans, E. G. Jr. Music appreciation by television. Music Educators Journal, 1954, 41, No. 2, 28-31.

Experiences in teaching music appreciation on the Western Reserve University telecourse series. Sample lesson included in the article. Description given of steps in administering such a course.

107. Evans, R. I. Planning and implementation of a psychology series on a non-commercial educational television station. American Psychologist, 1955, 10, 602-605.

Experiences in teaching Marriage and Family Life over KUHT-TV. Author outlines steps taken to set up and run the program. Concludes that content of series was not emotionally disturbing to any of the viewers who offered comments. Subject matter during the course dealt with problems of sex, parent-child relationships and similar topics. Lectures with the use of blackboard first, role playing and panel discussion second, and question-answer sessions third, was order of preference for presentation of the 30 credit students. The audience was estimated at 30,000 television homes by a commercial survey.

108. Goedeke, M. T. Vocational problems via video. Occupations, 1951, 19, 278-280.

Report on two 15 minute guidance programs for junior and senior high school students in Baltimore. Reaction of students and teachers--favorable.

109. Harvey, H. G. From language laboratory to television studio. Modern Language Journal, 1954, 38, 282-289.

Experiences in teaching French by TV at University of Rochester.

110. Jennings, J. D. & Crawford, R. An experiment in communication. American Anthropologist. 1953, 55, 305-307.

Experiences in presenting an anthropology course, People, How They Act, over a commercial station in Salt Lake City.

111. Kane, Eleanora B. Science on television. Baltimore Bulletin of Education, March-May 1951, 28, 2-4.

Report of a science broadcast for in-school viewing. Split-screen and rear projection techniques were used. A feedback microphone was placed in the classroom. The split screen was used so that both the pupil talking and the instructor could be viewed simultaneously on the screen. The instructor thus received cues about the questioner by watching the monitor.

112. Kefalas, Phyllis. The library on television. Wilson Library Bulletin, 1955, 29, 530-532.

Personal experiences in preparing for and in teaching an in-school library series for the San Diego school system. (See abstracts, under Stanley, DeG.)

113. Kelso, H. E. Classroom discussion via television. School and Society, 1955, 82, 120-122.

Chief instructors report of the Iowa closed-circuit study with a political science course. See abstracts--Harshbarger and Becker.

114. Lagler, K. F. Teaching human biology via television. The Biologist, 1951, 33, 83-90.

Personal experiences encountered by the author in preparing and presenting a telecourse over the University of Michigan Television Hour.

115. Lehr, Marguerite. An experiment with television. American Mathematical Monthly, 1955, 62, 15-21.

Advice from a Bryn Mawr professor after her experiences in telecasting a one semester course over the University of the Air, WFIL, Philadelphia.

116. Lewis, P. Build-in TV for teacher training Chicago Schools Journal, Sept.-Oct. 1954, 36, 19-23.

Describes the uses of TV at Chicago Teachers College, as for example: orientation of freshman (tour of campus); films via TV from AV room; registration; and mass testing of students.

117. Lewis P. Closed circuit TV. Chicago Schools Journal, 1953, 35, 69-75

Uses of closed circuit TV at Chicago Teachers College. Used to augment teaching in the classroom by having demonstrations which are hard to see televised in the classroom. Thus, class may either watch the instructor directly or glance over at TV receivers when they cannot see the instructor's demonstrations. Used in such classes as ceramics, internal carving in plastics, and dissection in anatomy.

118. Lewis P. Closed-circuit TV is ready for you. Phi Delta Kappan, 1953, 35, 117-119.

Description of work at Chicago Teachers College in closed circuit work.

119. McGaw, H. F. Educational TV in action. Wilson Library Bulletin, 1955, 29, 526-529.

Personal experiences on presenting a library series over KUHT, Houston. Includes sample script used.

120. McKeachie, W. J. Teaching psychology on television. American Psychologist, 1952, 7, 503-506.

Description and personal experiences of teaching a psychology course over the University of Michigan Television Hour. The author's 15 week course in general psychology given in the fall of 1951 had 700 students registered with audience surveys indicating an audience of 100,000 to 150,000.

121. Merritt, T. P. Physics via television. American Journal of Physics, 1951, 19, 386-387.

Albright College relates experiences in presenting "Nuclear Physics for the Layman" on the University of the Air, WFIL-TV, Philadelphia.

122. Murphy, E. F. French literature by television. Modern Language Journal, 1956, 40, 50-51.

Personal experiences of the author in teaching a credit course sponsored by Baltimore Junior College in the summer of 1954 over WBAL-TV.

23. Phelps, E. R. Science on Television. *American Journal of Physics*, 1951, *19*, 387-388.

Experiences and advice of a Wayne University professor in presenting science and physics experiments over television. Broadcast on a Detroit series over WJBK-TV.

24. Phillips, K. & Steinberg, W. B. Industrial arts on television in San Diego, Calif. *Industrial Arts and Vocational Education*, 1955, *44*, 315-317.

Experiences in presenting metalworking for in-school viewing over TV. Part of program reported in abstracts section by DeGraff Stanley.

25. Raymond, J. Adapting Spanish to the teleclass. *Education*, 1955, *75*, 664-671.

Description of a Spanish course taught by a Pennsylvania State University professor. Describes briefly the University of the Air over WFIL-TV Philadelphia. Daily programs for two semesters each year given. Cooperating institutions, University of Pennsylvania, Swarthmore, Bryn Mawr, Rutgers, Drexel Institute, Temple, Princeton, and Penn State. Estimated 75,000 viewers in the Delaware valley.

26. Raymond,J. Teaching foreign language on television. *Modern Language* Journal, 1954, *38*, 227-230.

Advice from a Spanish instructor on University of the Air in Philadelphia.

27. Rochelle, W. C., Jr. Industrial Arts and TV. *Industrial Arts and Vocational Education*, 1956, *45*, 181-183.

Personal experiences in telecasting over a Schenectady station. Time on the program donated by the station and sponsored by the Mohawk Valley Television Committee. Program Outlines for each session included.

28. *Stand by you're "on the air" TV tips for teacher-producers*. Cincinnati: Hamilton County Schools, 1956. (duplicated)

General orientation handbook for teachers in the Hamilton County school system about to teach TV courses. Gives a very brief history of the Cincinnati ETV station WCET and a resume of educational television organization in Hamilton County.

29. 3,000 women in a single sewing class make a dress via TV. *What's New in Home Economics*, December, 1953, 24-25, 62, 64.

Popularized report on the results of the program "Make a dress--TV" series over WOI-TV in 1951. (See abstracts)

J. Reviews of the Field of Educational Television and TV Research

130. Arnstein, G. E. KQED: Educational television in Northern California. California Journal of Secondary Education, 1954, 29, 437-444.

Development of the Bay Area Educational Television Committee, its trials, and the successful effort to put an educational television station on the air.

131. Carpenter, C. R. Psychological research using television. American Psychologist, 1955. 10, 606-610.

A review of the needs and development of research in instructional television.

132. Cassirer, H. R. Educational television--world wide. Quarterly of Film, Radio and Television, 1954, 8, 367-374.

Activities of UNESCO in the area of television briefly summarized along with a report on the state of educational television around the world.

133. Dunham, F. & Lowdermilk, R. R. Television in our schools. Washington, D. C.: Office of Education, U. S. Dept. of Health, Education and Welfare, Bulletin 1952, No. 16, Revised, 1953.

Lists the potentialities of education by television and summarizes some of the activities in television by schools around the nation.

134. Finn, J. D. Television and education: A review of research. Audio-Visual Communication Review, 1953, 1, 106-126.

Article summarizes research findings around the following major areas: the general social effects of television, content analyses, educational effects of television and technical studies.

135. Groisser, P. L. Educational television. Social Education, 1955, 19, 5-8, 32.

A review of educational television by a member of the TV subcommittee of the National Council for Social Studies.

136. Hickey, P. J. Station KCET reporting. NEA Journal, 1955, 44, 275-276.

A report after a year of community educational broadcasting in St. Louis.

137. Ingraham, L. W. How our schools are using educational television. *Social Education*, 1955, 19, 199-202.

Review of activities in the field of educational television. Second in a series of articles. See Groisser above.

138. Packman, M. Educational television. *Editorial Research Reports*, 1954, 1, 361-378.

A brief history of the growth of educational television and the problems involved such as financing and acquisition of time on commercial stations.

139. *Presenting National Educational Television*. Ann Arbor, Mich.: Educational Television and Radio Center, (no date)

An orientation to the activities and organization of the Educational Television and Radio Center.

140. Lewis, R. B. *Television in teacher education*. San Jose, Calif.: San Jose State College, April 6, 1956.

Summarizes teacher education activity through television in Northern California. Report covers activities of Sacramento State, Chico State, Dominican, San Francisco State, San Jose State and Fresno State Colleges as well as Stanford University and the University of California.

141. Runyon, R. P. & Kanner, J. H. Present status of signal corps television research. *Audio-Visual Communication Review*, 1956, 4, 83-91.

Description of a 10-point program based on previous military research findings. The 10 major areas listed by the authors as being investigated: 1. Emergency or mobilization of instructional television, 2. Development of effective television teaching methods, 3. Development of television for reducing training time, 4. Exploration of trainee variables related to television teaching, 5. Television instructor requirements, 6. Instructor-student intercommunication factors, 7. Television transmission of films, slides, and other pictorial products, 8. Training aid requirements for television teaching, 9. Development of television as a testing medium, and 10. Development of film and kinescope teaching applications.

2. Starmer, G. *"...an impressive record" and a consideration of the use of television for education at Chico State College*. Chico, Calif.: Chico State College, (no date). (duplicated)

A brief review and history of educational television in the United States. Chico State activities very briefly mentioned.

143. Television and education. Pittsburgh Schools, 1951, 26, No. 1. (Whole issue)

An overview of television as of 1951. Discussion of potentialities of television for education.

144. WQED First community sponsored educational TV station. Broadcast News, No. 86, 1955. (From reprint by RCA, Camden, N. J.)

A description of facilities, finances and programming of WQED, Pittsburgh.

K. Surveys, Compilations and Other Research

145. Allen, W. H. Extension TV coincidental telephone survey, June 7, 8, 9, 1954. Madison: University Extension Division, University of Wisconsin, Extension Television Research Program, Research Report No. 1, June 30, 1954. (duplicated)

Results of a telephone survey on three programs telecast by the University of Wisconsin--Conversational German, Spanish for Travelers and Looking at Music. Three samples of 1000 names each were drawn from the Madison telephone directory, one sample for each program. Out of 2571 calls actually made, 1767 were completed.

Estimated 18,782 Madison residents with phones also had TV sets. On the first night, it was estimated that 10,000 sets were turned on. On the second night 11,715 and on the third night 11,500. The number watching on the three nights was 20,000; 24,600 and 25,300 based on a projection of telephone interview figures of 343,435, and 375. Average number of viewers per set was 2.1 persons. WHA-TV, the UHF station over which the telecourses were broadcast, showed for the first night 289 sets turned on, for the second, 168 and for the third, 274, projected from telephone call figures of five, three and four. From the actual number of calls completed (1767) only 12 sets were turned on to tee station during the three nights.

146. Allen, W. H. Evaluation of foreign language TV kinescopes as supplements to classroom teaching. Madison: University Extension Division, University of Wisconsin, Extension Televsiion Research Program, Research Report No. 2, July 15, 1954. (duplicated)

Results of a questionnaire administered to 43 foreign language teachers attending a workshop at the University of Wisconsin campus. These teachers were shown a kinescope from the telecourse, Spanish for

Travelers, to see if they could be used in high school foreign language classes as supplementary material. About one-half of the respondents thought the pacing of the instruction was just right and about one-fourth thought the pacing too fast. Almost all thought that the use of music in the program added to its teaching value. A little over three-fourths thought that the high school Spanish language student would be able to follow and benefit from the use of the kinescope. Over half of the group stated they would rent language kinescopes for use in high school classes.

147. Allen, W. H. Extension TV coincidental telephone survey, July 29, 1954. Madison: University Extension Division, University of Wisconsin, Extension Television Research Program, Research Report No. 3, Sept. 10, 1954. (duplicated)

Results of a telephone survey on the night of an Extension Division telecast, Wisconsin is my Doorstep, telecast over WHA-TV (UHF). A sample of 500 names was drawn from the telephone directory. Out of a total of 375 calls made, 223 were comlpeted. Based on these 223 calls, the author estimated the mumber of Madison homes with TV sets at 53.8%. The number of TV sets turned on was set at 74.2% with an average of 2.3 persons viewing per set. The actual number of sets tuned in to WHA-TV was two, with three people watching.

148. Allen, W. H. Extension TV coincidental telephone survey, Sept. 14, 1954. Madison: University Extension Division, University of Wisconsin, Extension Television Research Program, Research Report No. 4, Sept. 30, 1954. (duplicated)

Results of a telephone survey on the night of an Extension Division telecast, Extension Closeup: School for Workers, over WHA-TV. A sample of 500 names was drawn from the telephone directory. Out of 299 calls made, 207 were completed. It was estimated that 64.2% of Madison homes had TV sets. On the night of the survey, 64.2% of the television sets were turned on, with an average of 2.1 persons per set. Of those surveyed, there were two sets tuned to WHA-TV with three reported viewers.

149. Boderick, Gertrude G. Educational television local program survey (School year: 1952-53). Washington, D. C.: Office of Education, Dept. of Health, Education and Welfare, July, 1953.

Results of a survey of 109 television stations on the air during 1952-53. Stations were asked to name the schools and colleges which were presenting educational television programs over their facilities on a regular basis. Survey showed that over 90 individual stations and the networks were being used by schools and colleges in 76 cities in 32 states and the District of Columbia. Two were offered by state departments of education, seven by county school systems, 84 by colleges and universities and 49 by public and private school systems of the 256 program series listed. Reported purpose of nearly 43% of all programs was public relations.

150. Closed circuit television installations at educational institutions. Joint Council on Educational Television & Committee on Television, American Council on Education. Washington, D. C., February, 1956. (duplicated)

A listing by state and by educational institution within the state of closed circuit installations. Each listing accompanied by a description of the installation and the uses to which it is put.

151. Colleges and universities using closed circuit TV. Higher Education, 1956, 12, 118.

Short article lists 34 states and the District of Columbia comprising a total of 66 institutions having closed circuit facilities. (March 1956)

152. Courses by television. Higher Education, 1955, 12, 45.

Report of a survey made by the TV committee of ACE. 170 regular academic courses with a total enrollment of 12,000 offered by 44 different institutions. (November, 1955)

153. David, J. H. WOI-TV teleclasses. Ames: WOI-TV Iowa State College, February 18, 1955. (duplicated)

Listing of college instruction offered over WOI on a credit and non-credit basis. Ninth course on air at time of report. All enrollees required to come to the campus for mid-term and finals. Also asked to purchase same textbooks and other equipment required of students on-campus.

154. Desiderato, O. L., Kanner, J. H. & Runyon, R. P. Procedures for improving television instruction. Audio-Visual Communic. Rev., 1956, 4, 57-63.

Third in a series of reports based on the HUMRRO study by the authors. (See abstract)

155. Diana, L. & Elkus, Leonore. Educational television in Pittsburgh. Quarterly of Film, Radio and Television, 1956, 10, 312-317.

A resume of WQED activities including the results of some viewer surveys. Commercial surveys revealed that more than 41% of all families in Allegheny county watched WQED at least part of each week in 1955. Another survey of the population residing within a seven-mile radius of the transmitting tower showed that 33.5% of set owners reported watching WQED. Amount of time viewed each day was--90% for one to two hours, 8.2% for three to four hours, 0.9% for five to six hours, and 0.9% for seven to eight hours. The biggest problem facing the Pittsburgh educational station--financial insecurity. WQED yearly budget is $300,000. Towards this, the schools of the area donate 30 cents per child. But the station has no assured and steady income.

156. Dilworth, June. Results of educational television in-school viewing survey. March 12-16, 1956. Seattle: King County Schools and KCTS (TV), 1956. (duplicated)

Results of a questionnaire sent to schools in the KCTS-TV area, Seattle. Ninety-three out of 264 schools returned questionnaires. There were 59 schools out of 93 with television sets and 34 without. The total number of classes viewing the 10 in-school telecasts was 418 composed of 12,469 students. Broadcasts were for elementary schools. The general evaluations on all the programs ranged from average to excellent with most of the programs getting a very good rating.

157. Educational television programming. A survey of programs offered by nineteen educational television stations. Ann Arbor, Mich.: Educational Television and Radio Center, June 1, 1956. (duplicated)

A survey of a week of programming by educational television stations. Of the total program time of the 19 stations about 25% was devoted to children's programs. Of these, 59% were for in-school viewing. Programs directed at adult and family audiences were approximately 75% of the total time. Of this time, approximately 8% was devoted to television credit courses. A listing is given of the 22 credit courses being offered during the week of the survey through educational television stations.

158. Emery, D. G. College courses by television. College and University Business, June, 1953, 14, 26-29.

A brief history and review of pioneer efforts in college credit television courses at Western Reserve, Butler, Toledo and Omaha universities. Generalizations drawn from figures obtained from these four universities.

159. Grubbs, Mary & Epting Earluth. Teachers and pupils in action. A teacher-education program sponsored by WLW-A in cooperation with the Georgia State Department of Education. Atlanta, Ga.: Fulton County Schools, (no date) 1955? (duplicated)

An outline report of a telecast carried out for the purpose of evaluating weaknesses and strengths in classroom TV programs.

160. Kanner, J. H., Runyon, R. P. & Desiderato, O. Television as a training and educational medium. Audio-Visual Communic. Rev., 1955, 3, 163-172.

An article based largely on the HUMRRO study conducted by the same authors. (See abstract)

161. McKune, L. E. Telecourses for credit. East Lansing: Michigan State University, Continuing Education Service, June 30, 1956. (duplicated)

A compilation of institutions offering courses on open broadcast television for credit. Seventy colleges and institutions are listed in the index with names and addresses of responsible persons for credit courses. 296 college credit courses are listed with course title, number of credits, course fees, type of instructor and instructor compensation.

162. Milwaukee Public Schools. Survey of commercial sponsorship of radio and television programs in the metropolitan school system. Reported in NEA Educational Research Service, 1954, Circular 11, 19.

"Shows for each of 52 large cities, whether or not the school system supplies programs for commercial radio and TV stations, whether commercial sponsorship of these programs is permitted, and whether restrictions are made by administrative policy or board rule."

163. Reporting on the experimental study in instructional techniques. Newsletter, Miami University (Ohio) Development Council, February, 1956, 1-4.

Describes experiment in TV teaching started second semester of 1956. In the main televised courses, Education (Foundations of Human Behavior) has five experimental and two control sections of approximately 30 students each. Physiology (Principles) has four experimental, one control, 30 students each. Sociology (Introduction has four experimental, four control, with 35 in the experimental and 30 in the control groups. Zoology (Human Biology) has five experimental and no control groups, 35 in each section. In addition, Business (Government and Business) has one experimental and one control with 140 experimental students and 35 control. Education (Arithmetic in the Elementary School) has two experimental groups, 60 in each. English (Composition and Literature) has two experimental and two control, 55 in the former and 27 in the latter. Geography (Essentials of Modern Geography) has three experimental groups of 75 students each and three control groups of 33. Psychology (Elementary) has an experimental group of 80 and a control of 30 students. In addition courses are being televised which are taught by graduate assistants coordinated by a staff member. In Business (Principles), there are 16 experimental groups of 30 students and one control group. In Geology (General) there are five experimental groups of 30 students each and one control group. Different experimental procedures are being used in each of the studies. The program is to be expanded and continued in the fall semester, 1956-57.

164. Results of the Joint Council on Educational Television's Survey of programming, January 10, 1956. Washington, D. C.: Joint Council on Educational Television, 1956. (duplicated)

Survey sent out in November, 1955 to 418 school systems. 260 responded with the following results: Total number of hours of in-school programming, 1952-1956 inclusive--2237¼; total number of hours of public relations or interpretive programming, 1952-1956--5181; Combined total hours of in-school and public relations programming, 1952-1956--7418¼; Total number of hours of all school programming, 1952-1956--8454¼; Total number of hours of all school programming, by years: 1952-1953, 1019½; 1953-1954, 1758½; 1954-1955, 2818¼; 1955-1956, 2858 (incomplete). Report also breaks down number of hours of in-school and public relations programming by school systems.

165. Runyon, R. P., Desiderato, O. L. & Kanner, J. H. Factors leading to effective television instruction. Audio-Visual Communic. Rev., 1955, 3, 264-273.

Second in a series of articles based on the HUMRRO study by the authors. (See abstract)

166. Stanley, R. J., MacLean, M. S. Jr. & Carter, R. F. Exploring problem areas in: Educational TV. Madison, Wisc.: University of Wisconsin Television Laboratory, Research Bulletin No. 5, June 1, 1956. (duplicated)

Results of personal interviews with 187 persons in households in the city of Madison. Chief interest was in describing the viewing and non-viewing population of WHA-TV, the University of Wisconsin station, along the dimensions of attitude toward the station, amount of viewing, and recency of exposure.

167. Survey of opinion--Central Michigan tele-course. Mt. Pleasant, Mich.: Division of Field Services, Central Michigan College, (no date) 1955? (typewritten)

Nine open-end questions were asked in a mail survey of students in various Michigan towns who took a six-week summer course offered by Central Michigan College. Thirty-two out of 57 enrolled students answered the questionnaire. The course was entitled, "Speech, Language and Reading problems of Children," and was telecast once a week for 30 minutes a program.

To the question, "What is your opinion of TV as a medium of instruction?" all of the respondents answered favorably. To the question, "Do you believe this medium is effective without further personal contacts with the instructor, keeping in mind the fact that this is a correspondence course?" a majority of the respondents believed that it was effective. Most answers stated there was more contact by TV since in regular correspondence courses there was no contact at all. Just seeing the instructor on the screen evidently sufficed. A few answers stated that a pre-broadcast schedule of events would be helpful.

168. Teacher reactions to TV and radio programs presented 1952-1953. Baltimore: Baltimore Public Schools, (no date) 1953? (duplicated)

A compilation of teachers' remarks on 13 programs, both in-school and public relations put on by the Baltimore public schools. Twenty-one schools represented in the comments. Majority reaction to each program--favorable.

169. Tucker, H., Lewis, R. B., Martin, Gaither L. & Over, C. H. R. Television therapy The effectiveness of closed circuit television as a medium for therapy in the treatment of the mentally ill. San Jose, Calif.: Dept. of Psychology, San Jose State College, 1955.

Report of an experiment carried out at Agnews State Hospital, Agnew, Calif. Both commercial television programs and closed-circuit television therapy were used in treatments. Results showed a significant improvement in behavior patterns and activity levels.

170. The WOI-TV audience A report of a bench mark survey of householders living within the area up to 50 miles from Ames. Ames, Iowa: WOI-TV Iowa State College, 1952. (duplicated)

Results of 1817 personal interviews taken in 1951 to determine the composition and characteristics of the WOI audience. One of the findings: The audience for entertainment programs and educational programs telecast adjacently is about the same size. Viewers evidently do not turn off their sets when educational programs come on after entertainment shows.

L. Articles Noted but not Available to the Writer

171. Instructor-student contact in teaching by television. Training evaluation and research programs, Part IV, Training research programs. Headquarters, Southwestern Signal Corps Training Center and Camp San Luis Obispo, Calif., July 1, 1953.

172. Program 4, television-type proficiency testing. Training evaluation and research programs, Part I, Proficiency measurement programs. Headquarters, Southwestern Signal Corps Training Center and Camp San Luis Obispo, Calif., July 1, 1953.

173. Schafer, P. The Kansas television experiment. Kansas City: University of Kansas Medical Center, 1953.

APPENDIX B

Results of the Survey

The original plan of this study called for an analysis of research done in the field of instructional television. What was hoped would be accomplished was a sort of rhetoric of instructional procedures. Consequently, a questionnaire was devised to elicit research papers on television to augment a library search of the scholarly journals. The plan was revised to include questions on courses which had actually been taught on television, either open broadcast or closed circuit.

In late May, 1956, the final form of the questionnaire was sent to persons on three mailing lists--the American Association of School Administrators, the National Association of Educational Broadcasters, and the Association for Education by Radio and Television. Although duplication was inevitable in a great many instances, it was hoped that we would tap almost all institutions engaged in instructional television in this manner. The cut-off date was June 1, 1956.

The questionnaire itself was composed of three parts. The first was a letter of explanation, the second, a fill-in section on courses offered with space for pertinent data in connection with these courses, and the third, a request for research papers on evaluation of instruction by television. Of approximately 12,000 questionnaires mailed, 1552 replies were received, a return of about 13%. The great majority of these replies reported no television activity, although some indicated that they were contemplating such activity in the future. Ninety two respondents contributed research reports, either by reference to some published work or by inclosures of copies of unpublished works. One hundred thirty two institutions, about 8.5% of those replying, reported instructional television activities. Seventy seven of these institutions were colleges and universities, the rest were school systems or boards of education. The data in this section are drawn from the replies of these 132 institutions.

A. College credit courses

A total of 244 separate courses for college credit on open broadcast were reported by 48 different institutions.* Of these 244 courses, however, 42 were given by the University of Houston, 28 by the University of Omaha, and 23 by Western Reserve University. Thus three universities accounted for 93 courses or 38.1% of these reported. Other schools reporting over 10 courses were Indiana

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* Cf. survey made by the TV committee, American Council on Education in November, 1955. (Re 152) The committee reported 170 regular academic courses offered by 44 institutions with a total enrollment of 12,000.

Also see survey made by Continuing Education Service, Michigan State University (Re 161) which lists 294 courses offered by 65 colleges as of June 30, 1956.

University, 15; Michigan State University, 11; Iowa State College, 10; and the Oregon State System of Higher Education, 10. These seven institutions accounted for 139 courses or 58% of all courses reported as credit courses. It is interesting to note that three out of these top seven institutions broadcast their courses over educational television channels--Houston, Iowa State and Michigan State.

Commercial TV stations broadcast 131 of the courses on 29 different stations. One hundred thirteen courses were broadcast by 15 educational television stations. It can be seen that the ETV stations, in their short period of existence, have been quite active in this field. Of greater significance, perhaps, is the fact that almost all of the courses broadcast over commercial facilities have been daytime programs. The evening telecourse is the usual rule with educational stations.

Some idea of the growth of telecourses may be seen from Table 1. The listings are by academic year and the following summer session. Thus the heading 1950-1951 means the period from September 1950 to August 1951.[*] The increase in the number of courses has been fairly steady as has been the number of institutions involved.

Table 1

College Credit Course Offered by Academic Year

Year	1950-1951	1951-1952	1952-1953[*]	1953-1954	1954-1955[**]	1955-1956[***]	Total
No. of Courses	2	14	23	47	62	96	244
No. of Institutions	1	4	5	10	21	39	80[****]

[*] See Heath, Abs. 28. Survey as of June 1953 lists four institutions, offering college credit.

[**] See Merrill, Abs 41, who lists 22 courses offered by 18 institutions, fall 1954.

[***] See ETRC survey, Re 157, which lists 28 credit courses offered by 19 educational television stations, spring 1956. Also see McKune Re 161, which lists 101 courses by 37 institutions.

[****] Some schools listed more than once.

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[*] These figures may favor the 1955-56 academic year since there is some evidence in the returns that some respondents may have misunderstood the questionnaire to mean listing of courses given only during the 1955-56 year.

Total enrollment on 229 courses on which data were available was 12,793. This is an average of 55.9 enrollees per course, however, this average must be taken with caution since a very few courses raise the average considerably. The range of enrollments is from zero to 500. Table 2 gives figures for size of enrollment per class categorized into intervals of 10, listed by academic year. Classes for 1950-1951 have been combined with 1951-1952 in the table.

Table 2

Credit Course Enrollment by Academic Year
Categorized into 10 Enrollee Intervals

Class Size	Academic Year					Totals
	1950-1952*	1952-1953	1953-1954	1954-1955	1955-1956	
0-10	7	11	14	20	24	76
11-20	4	5	10	11	20	50
21-30	2	2	4	4	8	20
31-40	0	0	8	8	8	24
41-50	1	0	1	2	5	9
51-60	0	1	2	3	4	10
61-70	2	0	0	2	3	7
71-80	0	0	0	1	1	2
81-90	0	0	0	2	0	2
91-100	0	0	1	1	1	3
Over 100	0	1	4	8	13	26

* 1950-1951 and 1951-1952 academic years combined.

As can be seen from the table, the modal credit class is 10 enrollments or less. The "over 100" category was mainly supplied by the University of Houston and North Carolina State College. Houston reported 12 classes ranging from 450 to 500 enrollments. These were six classes of a basic biology course and six classes of a basic humanities course. North Carolina State reported two classes of 400 each. Both of these classes were solid geometry, offered as makeup courses for high school deficiencies.

Aside from the 14 courses mentioned above, other high enrollment courses are listed in Table 3.

Table 3

High Enrollment Credit Courses

School	Course	When Given	Enrollment
Loyola (Chicago)	Basic Ethics	Fall 1955	238
San Francisco City College	Know Yourself Better*	Spring 1953	227
Fresno State College	Literature of California	Spring 1956	202
New Haven State Teachers College	Science in Everyday Life	Spring 1956	152
Washington (St. Louis)	The Religions of Man	Spring 1955	148
	Work Simplification	Spring 1956	100
Houston	Mathematics of Finance	Fall-Spring 1956**	145
	Accounting	Fall-Spring 1956**	140
	Intro to Psychology	Fall 1954	100
Iowa State Teachers College	Teaching of Arithmetic	Spring 1955	125
	Remedial Reading	Spring 1956	144
Wisconsin State College (Milwaukee)	America Elects a President	Spring 1956	137
	Let's Talk Children	Spring 1956	122
Morris Harvey College	Audio-Visual Education	Spring 1955	103

*No fee for enrollment

**Given twice during the school year.

There does not seem to be any common factor in the type of course to explain these rather high enrollments except that they seem to be very basic courses. Location of school may be a clue since five of the schools in Table 3 are located in rather populous cities.

One hundred thirty seven courses reported non-credit as well as credit enrollment figures. Non-credit or auditor enrollments were computed from the number of study guides of syllabi sold. There were 14,373 such non-credit enrollees for an average of 106 persons per course. The range was from one person to 1,800. The most popular courses with auditors were Introduction to Psychology (DePaul, Chicago, Winter 1955), 1,800; The Religions of Man (Washington, St. Louis, Spring 1955), 1055; Child Psychology (University of Minnesota, Spring 1955), 830; and Basic Ethics (Loyola, Chicago, Fall 1955), 684.

The number of credits given most often for a telecourse, either quarter or semester hours, is three. The range is from one credit to five credits, quarter or semester. The time segment per program most often used is 30 minutes. This is true regardless of the number of credits given. The number of sessions per week depends upon the number of credits given to a large extent. The most used number of sessions is once a week. It is interesting to note that for courses giving three credits, once a week sessions are just as numerous as thrice a week. Table 4 lists tabulations on 221 courses on which data were available. The left half of the table is time segments used, the right half, the number of sessions per week. The upper half of the table is semester courses, and the lower half, quarter credit courses.

Table 4

Credit Courses Listed by Time Segments, Number of Sessions a Week, and Type of Credit

		Time Segments (In Minutes)					Sessions Per Week					Totals
		15	30	45	60	Over 60	1	2	3	4	5	
No. of Semester Credits	1	9	15	5	1	0	19	2	0	0	9	30
	2	12	26	3*	5	0	12	19	4	1	10	46
	3	1	57	10*	8	2	27	22	27	0	2**	79
	4	0	1	0	1	0	1	1	0	0	0	2
	5	0	0	3	1	0	0	3	0	1	0	4
No. of Quarter Credits	1	0	1	0	0	0	1	0	0	0	0	1
	2	0	8	0	0	0	3	2	3	0	0	8
	3	0	37	1	0	7	14	3	17	0	11	45
	4	0	0	1	0	0	0	0	1	0	0	1
	5	0	6	0	0	0	4	0	2	0	0	6
Totals		22	151	23	16	9	81	52	54	2	32	221

*One class for 50 minutes.

**One class for six times a week.

A great range of courses have been taught by television. All of the courses seem to be on a lower undergraduate level, as evidenced by the large number of courses described as introductory. Table 5 lists the 244 courses grouped by subject areas. The social sciences and humanities seem to be the main fields of concentration accounting for over half of the courses reported. Education courses, mainly elementary education, have been offered the oftenest with 28 such courses. Psychology, usually an introductory course, follows with 26 courses.

Table 5

Credit Courses Listed by Subject Area

1. Humanities (66 courses)

a.	History	18
b.	English	13*
c.	Speech	11
d.	Literature	10
e.	Basic Humanities	7
f.	Philosophy	6
g.	Linguistics	1

2. Social Sciences (65 courses)

a.	Psychology	26
b.	Political Science	14
c.	Sociology	8
d.	Anthropology	6
e.	Geography	6
f.	Economics	4
g.	Basic Social Science	1

3. Education (28 courses)**

4. Fine Arts (27 courses)

a.	Art	12
b.	Music	9***
c.	Dramatic Arts	5
d.	General Fine Arts	1

5. Sciences (19 courses)

a.	Biology	10
b.	Mathematics	5
c.	Botany	1
d.	Physics	1
e.	Geology	1
f.	General Science	1

6. Languages (12 courses)

a.	German	5
b.	French	4
c.	Spanish	3

7. Business Administration (11 courses)

8. Agriculture (4 courses)

9. Religion (4 courses)

10. Miscellaneous (8 courses)

a.	Guidance	1
b.	First Aid	1
c.	Physical Education	1
d.	Work Simplification	1
e.	Photography	1
f.	Library Science	1
g.	Journalism	1
h.	Home Economics	1

*Majority of these were Shakespeare courses.

**Mostly elementary education courses including six courses on playing the piano given for elementary education credit.

***Majority of these were music appreciation courses.

Charges for taking a course for credit were most likely to be the normal resident fees for on-campus students. Of 63 quarter courses which reported tuition and fees, the range was from $3.00 per quarter hour credit to $11.00. The usual charge was from $6.00 to $8.00 per quarter hour credit. Of 177 semester courses reporting fees, the range was from no charge (six courses) to $25.00 per semester hour. The usual charge was from $10.00 to $15.00 per semester hour credit. A study guide or syllabus was usually included in the tuition fee. In addition, students bought recommended texts at their own expense. Study guide costs for those who wanted to audit the credit courses ranged from 50 cents to $10.00. The most frequently reported price was $2.00.

Compensation for credit course instructors was reported for 96 of the 237 courses on which data was available. Nearly all of these responses did not stipulate how much the instructor was paid. Some of the responses on amount paid were $200.00 for a three semester credit course, $400.00 for a three semester credit course, $100.00 for nine lessons, $12.50 per hour and $20.00 per program. No pay was given for 141 of the 237 courses. However, some sort of time compensation was made for some of these. The most frequent time adjustment was a two for one load reduction. Other ways mentioned were two for one overload and one for one overload.

B. Non-Credit or Adult Education Courses

Thirty-nine institutions reported courses which carried no credit or carried high school credit. Ten of these 39 also offered college credit courses. It would seem from the description of these courses that a great many of them are regular credit courses offered to on-campus students. However, in most cases it seems the courses have been truncated and popularized. Evidently, non-credit courses are designed to attract as wide an audience as possible.

A total of 162 non-credit or adult education courses were reported. Of this number, 30 allowed from one-half to one high school credit. Sixteen of these high school credit courses were given by the Pittsburgh Public Schools which has been offering such courses over its Adult School of the Air since 1954. Courses are either 18 or nine weeks long. In addition, the Pittsburgh Schools started the Summer School of the Air in June, 1956 which allows high school students to make up deficient work. Other institutions offering high school credit courses were the San Diego City Schools, 12 courses, and the University of Nebraska, two courses.

Commercial TV stations carried 91 of the 162 courses, educational television stations 71. Twenty-five different commercial stations were involved. In addition, one course, Columbia University's American Civilization seminar, was carried by the ABC network utilizing 12-16 stations. Twelve different educational television stations carried non-credit courses.

The University of Michigan led in the number of non-credit courses offered with 23. These courses, for which viewers may receive a certificate of participation by taking a final examination, are offered on a one-hour program each Sunday. Other schools offering a high number of non-credit courses were Michigan State University, 19; University of Nebraska, 10; and Iowa State College, nine.

Table 6 lists non-credit and adult education courses by academic year. As in Table 1, academic year is meant to cover the fall through spring sessions and the following summer. This table is based on 149 courses on which data were available.

Table 6

Non-Credit and Adult Education Courses
by Academic Year

Year	1950-1951	1951-1952	1952-1953	1953-1954	1954-1955	1955-1956	Total
No. of Courses	6	8	17	15	32	71	149
No. of Institutions	2	4	10	13	12	28	69*

*Some schools listed more than once.

"Enrollment" figures were reported on 56 courses. These figures were taken from the number of study guides or syllabi sold or requested. In some instances, more accurate figures were obtained from those courses which gave final examinations for a certificate of participation. A total of 15,508 enrollments were reported for the 56 courses, an average of 277 per course. The range was from zero (four courses by the San Diego City Schools) to 2,500 (Poco a Poco, Spanish language series by the Denver Public Schools).

As with credit courses the most popular time segment was 30 minutes. Of the 143 courses on which data was available, 92 were given as one-half hour programs, 29 courses were for 20 minutes, 17 courses for 15 minutes, four courses for 60 minutes and one course for 45 minutes. Once a week was the most frequent number of sessions utilized. One hundred eight of the 143 courses were given once a week, 25 were given twice a week, four were given four times a week, two were given five times a week and four were given once a month.

The kinds of subjects taught as non-credit courses were very similar to the credit courses. Table 7 categorized 152 courses on which data were available.

Table 7

Non-Credit and Adult Education Courses Listed by Subject Area

1. Humanities (27 courses)

a.	English	11
b.	History	6
c.	Philosophy	5
d.	Speech	3
e.	Literature	1
f.	Basic Humanities	1

2. Social Sciences (26 courses)

a.	Psychology	11
b.	Political Science	8
c.	Sociology	3
d.	Anthropology	1
e.	Geography	1
f.	Economics	1
g.	Basic Social Science	1

3. Fine Arts (20 courses)

a.	Music	9
b.	Art	7
c.	Dramatic Arts	3
d.	General Fine Arts	1

4. Languages (15 courses)

a.	Spanish	9
b.	German	3
c.	French	3

5. Home Economics (12 courses)

6. Agriculture (7 courses)

7. Business Administration (4 courses)

8. Sciences (29 courses)

a.	General Science	11
b.	Mathematics	4
c.	Physics	3
d.	Botany	2
e.	Engineering	2
f.	Biology	1
g.	Chemistry	1
h.	Zoology	1
i.	Physiology	1
j.	Entomology	1
k.	Oceanography	1
l.	Astronomy	1

9. Education (2 courses)

10. Miscellaneous (19 courses)

a.	Photography	2
b.	First Aid	2
c.	Personal Hygiene	2
d.	Religion	1
e.	Public Relations	1
f.	Journalism	1
g.	Puppet Workshop	1
h.	Fish and Fishing	1
i.	Natural Resources	1
j.	Living in the Later Years	1
k.	Hobbies	1
l.	Warden Training	3
m.	Foreign Flavors	1
n.	American Freedoms	1

Viewers of non-credit courses could purchase study guides if they wished for most of the courses. Of the 80 courses on which data were available, the range in cost of study guides was from zero to $11.25. Over half of these courses charged one dollar or less for study guides. This is slightly cheaper than the credit study guides which usually cost two dollars.

Instructor payment data were available on only 52 of the 162 courses reported. Of this number, instructors were paid for 33 of the courses and not paid for 19. Amount of payment figures were again lacking from most of the responses. Some of the amounts reported were $10.00 a lesson, $12.00 a lesson, $200.00 for a once weekly series, and $250.00 for a once weekly series. Time compensation for those instructors not paid was mentioned in only a few replies.

C. In-School Viewing

Whereas coverage of credit and non-credit courses was fairly complete in comparison with other similar studies done to date, data on in-school viewing must be regarded as incomplete. Only 31 institutions reported in-school programming. The Joint Council on Educational Television survey (Re 164) in January, 1956, lists 17 additional schools from which we did not receive data.* Reporting method for in-school courses varied on the questionnaires so that useful summary tables could not be compiled.

In-school television programming has been going on longer on a regular basis than credit courses. The Philadelphia Public Schools have presented in-school enrichment programs since 1948. The District of Columbia Public Schools and the San Diego City Schools have engaged in programming since 1951, and the Baltimore Public Schools since 1952.**

The typical in-school program is either a 15 minute or a 30 minute course, offered once a week. Most of the courses are aimed at elementary level classes. Except for four experimental projects reported, none of the programs were intended to be complete teaching units, but were designed for enrichment purposes to be tied in with on-going classroom activity. Viewing of these programs, in all cases except for the experimental projects, were voluntary. The classroom teacher could decide whether or not the class would view the offering.

The four experimental projects reported were all supported by grants from the Fund for the Advancement of Education. The Pittsburgh Public Schools experiment involved three courses, Fifth Grade Reading, Fifth Grade Arithmetic and Fifth Grade French. These courses were given for 25 minutes a program five times a week from September 1955 to June 1956. The St. Louis Public Schools experimental program had three subjects, Second Grade Spelling, Ninth Grade General Science and Ninth Grade English Composition. These were given from February to June 1956. Each course was given five times a week, the spelling course for 20 minutes a program and the ninth grade courses for 30. The Chicago Public Schools offered two high school courses, Physics I and Algebra III, 30 minutes for each course five times a week. The Cincinnati Public Schools offered 11th and 12th grade chemistry for 40 minutes five times a week during March and April 1956. A preliminary report is available on the Chicago study (Abs 70) but the other three studies had not reported results at the time of this report. All of the programs were carried over educational television stations.

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*A misunderstanding of the questionnaire may have occurred in some instances. Some public school respondents returned negative replies since they did not give credit, in the usual sense, for in-school programming.

**D. C. programs discontinued during 1955-56 academic year.

D. Closed Circuit Activities

Only 29 respondents reported closed circuit activity. This was a disappointing return in view of the fact that there are at least 66 institutions which have such facilities. (Re 150, 151) It may be that a great many of the facilities are not used for classroom teaching but are used for other purposes such as training TV personnel. Of the 29 replies received, 11 were using closed circuit for demonstration or experimental purposes and had not televised any courses.

The most active center of closed circuit instruction was Pennsylvania State University, which reported 21 courses. (Abs 11, 46) Penn State is a comparative old-timer in closed circuit instructional courses, having started in 1954. A survey of instructional courses by closed circuit may be a little premature considering the length of time it has been used by schools.

The Fund for Adult Education, which is supporting the Penn State project, also is supporting five other closed-circuit teaching experiments reported in the survey. Two of these are high school teaching experiments, one at Evanston Township High School, Illinois, and the other at Mont Pleasant High School, Schenectady, New York. (Abs 3) It is interesting to note that a relatively high proportion of closed circuit activities have been planned with research objectives pre-planned compared to open broadcast courses reported in the survey. (Abs 9, 11, 12, 27, 46, 63)

The most noticeable point about closed-circuit courses in comparison with open broadcast courses is the time element. There was only one course in closed circuit instruction which reported a time segment less than 45 minutes. The rest were either 45 or 50 minute classes with a few running as long as 180 minutes. The normal time for either credit or non-credit open broadcast courses was thirty minutes.